SVR-MMF(FIT)

F&eIT Series

Monitoring & Control Server

User's Guide

CONTEC

Copyright

Copyright 2002 CONTEC Co., LTD. ALL RIGHTS RESERVED

No part of this document may be copied or reproduced in any form by any means without prior written consent of CONTEC Co., LTD.

CONTEC Co., LTD. makes no commitment to update or keep current the information contained in this document.
The information in this document is subject to change without notice.

All relevant issues have been considered in the preparation of this document. Should you notice an omission or any questionable item in this document, please feel free to notify
CONTEC Co., LTD.

Regardless of the foregoing statement, CONTEC assumes no responsibility for any errors that may appear in this document nor for results obtained by the user as a result of using this product.

Trademarks

All company and product names that are referred to in this manual are generally trademarks or registered trade.

Product Configuration

- System unit...1
- Manual...1
- Power connector...1

Unpacking:

This product is specially packed in an anti-static bag to prevent damage in shipping.

Check the contents to make sure that you have everything listed above. If you do not have all the items, contact your distributor or CONTEC group office where you purchased.

Note!

Do not remove the product from its protective packaging until the computer case is open and ready for installation. Electrical static can cause damage to electrical components.

Table of Contents

Copyright i
Trademarks i
Product Configuration ii

1. Introduction 1

Features 1
System Configuration Image 2
Limited One-Year Warranty 4
How to Obtain Service 4
Liability 4
Handling Precautions 5
About the Manual 6

2. Overview 7

Specifications 7
System Configuration 9
Example of System Configuration 9
External Dimensions 10

3. Functions of the Various Components 11

Nomenclature 11
Keyboard/Mouse Interface 12
Serial Port Interface 13
CRT Interface 14
CompactFlash Slot 14
RUN LED 15
STATUS LED 15
CF LED 15
SHUTDOWN SW 15
USB Port 15
Ethernet 16
POWER 17

4. Hardware Setup 19

Getting Started 19
Mounting the Module 20
Mounting on a DIN Rail 23
Connection Method 26
Supplying the Power to the Controller Module 26
Installation Conditions 27

5. System Setup 29

Setting Procedure 29
Verifying the Operation 30
State Check from a Browser 30

6. Creation and a Display of a Monitoring Screen 43

Operation Procedure 43
Basic Operations 46
Types of Available Components and Their Overview ... 50
Monitoring-Screen Operation 62

7. Creation and a Display of a Processing Task 65

Operation Procedure 65
Basic Operations 72
The Kind and Outline of Parts Which Can Be Used 76
Sample 85

8. Troubleshooting 95

9. Appendix 97

F&eIT Protocol Specifications 97
Basic Specifications 99
Control Information 106
List of F&eIT Series of Products 109

List of Figures

Figure 2.1. System Configuration Diagram 9

Figure 2.2. SVR-MMF(FIT) External Dimensions 10

Figure 3.1. Nomenclature 11

Figure 4.1. Mounting on a DIN Rail *< 1 / 3 >* 23

Figure 4.1. Mounting on a DIN Rail *< 2 / 3 >* 23

Figure 4.1. Mounting on a DIN Rail *< 3 / 3 >* 24

Figure 4.2. Removing the Module from the DIN Rail *< 1 / 3 >* 24

Figure 4.2. Removing the Module from the DIN Rail *< 2 / 3 >* 25

Figure 4.2. Removing the Module from the DIN Rail *< 3 / 3 >* 25

Figure 4.3. Connecting the Controller Module to the DC-DC Power Supply Unit 26

Figure 4.4. Installation Orientation 27

Figure 4.5. Spacing between the System Unit and Any Surrounding Objects 28

Figure 5.1. Password Input 30

Figure 5.2. Whole Screen 31

Figure 5.3. Menu 31

Figure 5.4. Monitoring Display 32

Figure 5.5. Monitoring Creation 32

Figure 5.6 Network Configuration 32

Figure 5.7 Dial up Configuration 33

Figure 5.8. Modem Configuration 34

Figure 5.9. MMF user Configuration 35

Figure 5.10. MMF User Configuration (A Registered User Name) 35
Figure 5.11. PPP Server Configuration 36
Figure 5.12. PPP Server Configuration 36
Figure 5.13. DNS Configuration 36
Figure 5.14. SNMP Agent Configuration 37
Figure 5.15. View Logging File 37
Figure 5.16. System Maintenance Menu 38
Figure 5.17. Time Zone Setting 38
Figure 5.18. System Clock Setting 39
Figure 5.19. System State Configuration/View 39
Figure 5.20. MMF Server Configuration 40
Figure 5.21. System File Initialize 40
Figure 5.22. System File Backup/Restoration 41
Figure 5.23. System File Restoration 41
Figure 6.1. Menu 43
Figure 6.2. File Load 44
Figure 6.3. File Save 44
Figure 6.4. Clear 44
Figure 6.5. Fg Color 44
Figure 6.6. Item 45
Figure 6.7. Operation 45
Figure 6.8. Item 46
Figure 6.9. Item Meter 46
Figure 6.10. Meter 46
Figure 6.11. Operation 47

Figure 6.12. Operation Property 47
Figure 6.13. Property 47
Figure 6.14. Operation 48
Figure 6.15. Operation Move 48
Figure 6.16. Move 48
Figure 6.17. Operation 49
Figure 6.18. Operation Delete 49
Figure 6.19. Text 51
Figure 6.20. Meter 52
Figure 6.21. Graph 53
Figure 6.22. Tchart 54
Figure 6.23. FillBox 55
Figure 6.24. Slider 56
Figure 6.25. Switch 57
Figure 6.26. Seg7 58
Figure 6.27. Volume 59
Figure 6.28. Status 60
Figure 6.29. Creation screen 61
Figure 6.30. Slider 62
Figure 6.31. Switch 62
Figure 6.32. Seg7 62
Figure 6.33. Volume 63
Figure 6.34. Basic Setup Dialog Box 63
Figure 6.35. ADI12-8(FIT) 63
Figure 6.36. DAI12-4(FIT) 63
Figure 6.37. CNT24-2(FIT) 64

Figure 6.38. Property CH0 64
Figure 6.39. OUT Property..... 64
Figure 7.1. Menu 65
Figure 7.2. File Load 66
Figure 7.3. File Save 66
Figure 7.4. Debug Control..... 67
Figure 7.5. Mail Setup..... 68
Figure 7.6. Ftp Setup 68
Figure 7.7. File Setup 69
Figure 7.8. Task Setup..... 69
Figure 7.9. Task Status 70
Figure 7.10. Clear..... 70
Figure 7.11. Item..... 71
Figure 7.12. Operation 71
Figure 7.13. Item..... 72
Figure 7.14. Item Set..... 72
Figure 7.15. Set 72
Figure 7.16. Operation 73
Figure 7.17. Operation Property..... 73
Figure 7.18. Property..... 73
Figure 7.19. Operation 74
Figure 7.20. Operation Move 74
Figure 7.21. Move 74
Figure 7.22. Operation 75
Figure 7.23. Operation Delete 75
Figure 7.24. Set 76

Figure 7.25. FSet 77
Figure 7.26. Calc 77
Figure 7.27. Sub 78
Figure 7.28. Check 78
Figure 7.29. Mail 79
Figure 7.30. Log 80
Figure 7.31. Ftp 80
Figure 7.32. File 81
Figure 7.33. Label 81
Figure 7.34. Jump 82
Figure 7.35. Wait 82
Figure 7.36. Timer 83
Figure 7.37. Example of a Timer setting 83
Figure 7.38. Nop 84
Figure 7.39. Creation screen 84
Figure 7.40. Sample 1 85
Figure 7.41. Set Property 85
Figure 7.43. Set Property 85
Figure 7.42. Check Property 85
Figure 7.44. Sample 2 86
Figure 7.45. Set Property 86
Figure 7.46. Check Property 86
Figure 7.47. FSet Property 87
Figure 7.49. Set Property 87
Figure 7.48. Calc Property 87
Figure 7.50. Sample 3 88

Figure 7.51. Timer Property 88
Figure 7.52. Log Property 88
Figure 7.53. Log Property 89
Figure 7.55. Log Property 89
Figure 7.54. Log Property 89
Figure 7.56. Log Property 89
Figure 7.57. Sample 4-1 90
Figure 7.58. File Save 90
Figure 7.60. Sample 4-2 90
Figure 7.59. Jump Property 90
Figure 7.61. Sub Property 90
Figure 7.62. Sample 5 91
Figure 7.63. Label Property 91
Figure 7.64. Timer Property 91
Figure 7.65. Sub Property 92
Figure 7.67. Mail Property 92
Figure 7.66. Timer Property 92
Figure 7.68. Ftp Property 92
Figure 7.69. File Property 93
Figure 7.70. Jump Property 93
Figure 9.1. Communications Server Concept-Overall Diagram 97
Figure 9.2. Communications Protocol 99
Figure 9.3. Command Structure 101
Figure 9.4. Read Procedures 102
Figure 9.5. Write Procedures 103
Figure 9.6. Message Transmission 104

Figure 9.7. Trap Transmission.....104
Figure 9.8. Reset Transmission 105

List of Tables

Table 2.1. Functional Specifications 7
Table 2.2. Installation Environment 8
Table 3.1. Functions of the Various Parts.....11
Table 3.2. Keyboard/Mouse Connector..... 12
Table 3.3. Serial Port Connector 13
Table 3.4. CRT Connector..... 14
Table 3.5. Power Supply for the Card 14
Table 3.6. Ethernet Connector..... 16
Table 3.7. Power Supply Connector..... 17
Table 6.1. Parameter List 50
Table 9.1. Table of Protocol Levels..... 98
Table 9.2. Virtual Space Outline 99
Table 9.3. Frame Structure.....100
Table 9.4. Commands in Detail.....102
Table 9.5. Status Table 105
Table 9.6. Information Common to Devices <Example> 107
Table 9.7. Device-Specific Information <Example> 108
Table 9.8. Information Common to Devices - 2 <Example>.....108

1. Introduction

Congratulations on your recent purchase of the Monitoring & Control Server Unit.

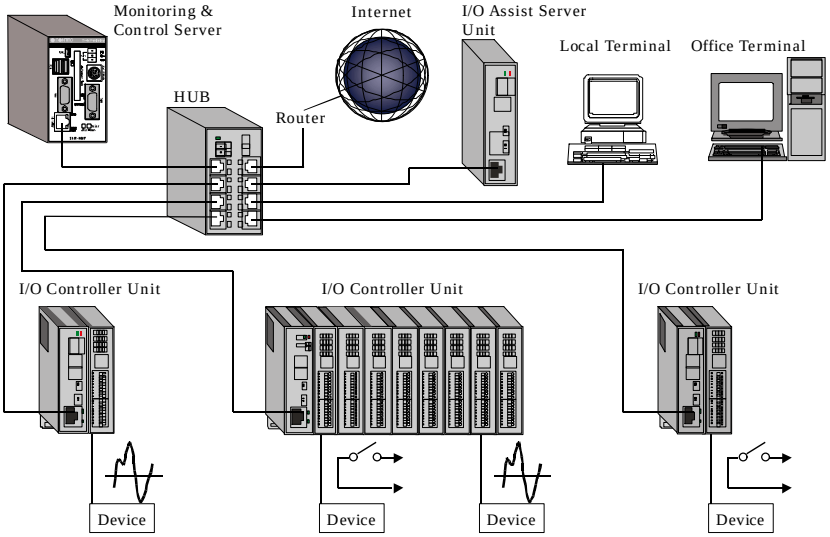
The SVR-MMF(FIT) is a Monitoring & Control Server with a data logging function that incorporates all the necessary functions in a compact unit.
The unit performs monitoring and logging of the data collected from I/O modules (CPU-CA10(FIT)) and other stacked devices. The various settings for the unit can be edited using an easy-to-use browser interface.
By connecting this computer to other members of the F&eIT series of devices, you can configure a built-in controller in an optimal manner.

Features

- Uses the F&eIT protocol to collect data from other F&eIT series devices.
- Monitor display of collected data.
- Collected data can be stored and maintained on a CompactFlash card.
- Monitors input data and can use e-mail to notify of abnormal conditions.
- Supports the F&eIT protocol for compatibility with other F&eIT series devices.
- Achieves an ultra-compact size (52.4mm×64.7mm×94mm) no larger than a cigarette.
- A fan-less implementation through the use of a power miser CPU.
- Packs an Ethernet I/F (10M/100M).
- Incorporates an expansion bus (connectable to F&eIT series modules).
- As in the case of other members of the F&eIT series, a mechanism for attachment to the 35mm DIN rail is provided in the module system unit as a standard item. The system features a unique configuration for its connection to a module on the side in a stacking manner, which allows you to configure the system simply and elegantly without using backplanes and other connecting devices.

System Configuration Image

Multiple I/O Controller Units and Monitoring & Control Server can be installed on the same network. In this manner, when connected to an Monitoring & Control Server a host controller can input and output signals to and from the devices that are connected to a subordinate I/O Controller Unit.



Explanation of names

- Monitoring & Control Server:
  This refers to the product SVR-MMF(FIT).

  Data can be collected from I/O Assist Servers and I/O controllers connected to the network as well as from connected device modules.
  The collected data can be displayed graphically by the monitoring function. Also, the internal programming function allows monitoring to be customized easily to suit the application by, for example, outputting alarms when upper or lower limits are exceeded or sending notification at fixed time intervals.
  The collected data can be stored on the unit's CompactFlash card and sent to other network hosts using e-mail or FTP.

- I/O Assist Server Unit:

  The I/O Assist Server Unit supports the management function that enables it to collect data from, and set data to, I/O Controller Units that belong to the same group as the Group ID that is set by using the Group ID switches of the SVR-IOA(FIT) ("Assist Server"), which is a CONTEC product. Group IDs can be set in a range of 0 to 7.
  By connecting local terminals and office terminals by means of a Web browser, it is possible to monitor the status of the devices that are connected to an I/O Controller Unit.

- I/O Controller Unit:

  The I/O Controller Unit is a general term that refers to any combination of this product, the CPU-CA10(FIT), with device modules.
  Each device contains a Group ID SW and a Unit ID SW; these switches must be set so that they are unique within the network.
  The I/O Controller Unit transmits data collected from the devices to the I/O Assist Server Unit that bears a specified Group ID.
  Group IDs can be set in a range of 0 to 8, whereas Unit IDs are set in a range of 0 to 7.
  When the Group ID is set to 8, no data is transmitted to the I/O Assist Server; instead, controls can be performed directly from a terminal to the I/O Controller Unit.

  The following device modules are available:
  an 8-point digital input, an 8-point digital output module (DIO-8/8(FIT)), a 16-point digital input module (DI-16(FIT)), a 16-point digital output module (DO-16(FIT)), an 8-point input analog/digital converter module (ADI12-8(FIT)), a 4-point output digital/analog converter module (DAI12-4(FIT)), and a 2-point input counter module (CNT24-2(FIT)).
  Further details on this topic may be found in the respective device module manuals.

- HUB:

  This is a line concentration device that is used when a LAN is constructed using twisted-pair cables.
  The F&eIT series includes an 8-port switching HUB unit (SH-8008(FIT)) that is equipped with a DIN rail mounting mechanism.

Limited One-Year Warranty

CONTEC Interface boards are warranted by CONTEC Co., LTD. to be free from defects in material and workmanship for up to one year from the date of purchase by the original purchaser.

Repair will be free of charge only when this device is returned freight prepaid with a copy of the original invoice and a Return Merchandise Authorization to the distributor or the CONTEC group office, from which it was purchased.

This warranty is not applicable for scratches or normal wear, but only for the electronic circuitry and original products.
The warranty is not applicable if the device has been tampered with or damaged through abuse, mistreatment, neglect, or unreasonable use, or if the original invoice is not included, in which case repairs will be considered beyond the warranty policy.

How to Obtain Service

For replacement or repair, return the device freight prepaid, with a copy of the original invoice. Please obtain a Return Merchandise Authorization Number (RMA) from the CONTEC group office where you purchased before returning any product.

*** No product will be accepted by CONTEC group without the RMA number.**

Liability

The obligation of the warrantor is solely to repair or replace the product. In no event will the warrantor be liable for any incidental or consequential damages due to such defect or consequences that arise from inexperienced usage, misuse, or malfunction of this device.

Handling Precautions

Take the following precautions when handling this product.

- Do not use or store the equipment in a hot or cold place, or a place that is subject to severe temperature changes.
  Examples: - Under direct sunlight
  - Near a heat source
- Do not use or store the equipment in a place that is subject to extreme humidity or dust. It will be extremely dangerous to use the equipment when its interior is contaminated with water or liquid, or conducting debris. When using the equipment in an environment that is subject to water or conducting debris, consideration should be given to the installation of a control panel with a structure that keeps dust out.
- Do not use or store the equipment in a place that is subject to shock or vibrations.
- Do not use or store the product near equipment generating a strong magnetic field or radio waves.
- Do not use or store the equipment in air with diffused chemicals or in an environment in which the equipment can come into contact with chemicals.
- When attaching or detaching a module or a connector, please be sure that the power cable for the system is unplugged from the outlet.
- Do not modify the unit. CONTEC will bear no responsibility for any problems, etc., resulting from modifying this unit.
- If you notice any malfunction or abnormal conditions (such or a strange odor or overheating), please unplug the power cord and consult either CONTEC's Information Center or the dealer from whom the system was purchased.

Notes on Handling This System

- To clean the SVR-MMF(FIT), gently wipe it with a soft cloth soaked with water or a neutral detergent. Do not use benzene, a thinner, or other volatile solvents as they can cause the coating to discolor or peel off.
- Life of the components

  Battery … A primary lithium battery is used to back up the internal clock/calendar and the CMOS RAM. When the power is not drawn and the battery is stored at 25°C, it will last over 10 years.

* The supply items can be replaced in the same manner as the repair of the system (chargeable).

About the Manual

This manual consists of the following chapters :

Chapter 1 Introduction

Chapter 2 Overview
Explains the product specifications and system configuration.

Chapter 3 Function of the Various Components
Explains each connector on the unit.

Chapter 4 Hardware Setup
Explains how the units are to be installed and connected for setup.

Chapter 5 System Setup
Explains how to set the IP address and configure the system.

Chapter 6 Creation and Display of a Monitoring Screen
Explains the components and settings that can be used on the monitoring screen.

Chapter 7 Creation and a Display of a Monitoring Task
Explains how to create applications for access to the various devices, and the specific functions that are available for applications development.

Chapter 8 Troubleshooting
Explains troubleshooting procedures.

Chapter 9 Appendix
Provides product specifications, describes the F&eIT protocol that provides access to the F&eIT series, and explains the virtual address map that is provided on the system.

2. Overview

Specifications

Table 2.1. Functional Specifications

Model		SVR-MMF(FIT)
CPU		MachZ 120MHz (ZF Micro Devices)
Chip Set		Built-in MachZ (ZF Micro Devices) CPU
Memory	L2 Cache	512Kbyte PB-SRAM
	Main Memory	144 pin Micro-DIMM Socket×1 Standard provides 64Mbyte
	BIOS ROM	128KB E0000h to FFFFFh (Phonix)
Video	Controller	69000 (Chips & Technologies)
	Video RAM	2Mbyte
	Video BIOS	44Kbyte (C0000h to CAFFFh) or 32Kbyte (C0000h to C7FFFh)
	CRT I/F	15 pin HD-SUB connector 640×480/800×600 (16,770,000 colors), 1024×768 (65,536 colors), 1280×1024 (256 colors)
Serial I/F		RS-232C(generic): 1ch 9 pin D-SUB connector
LAN	I/F	Ethernet 100BASE-TX/10BASE-T RJ-45 connector
	Controller	Intel 82559
USB I/F		2ch (Not used)
Keyboard I/F		PC/AT keyboard-compatible (6 pins, MINI DIN connector)
Mouse I/F		PS/2 type mouse (6 pins, MINI DIN connector)
F&eIT I/F		F&eIT series module connectivity (When using POW-DD10 power supply unit, the total power for externally connected units . Should not exceed 1.5 A)
Watchdog timer function		2sec(Max.) (Output to either RESET or NMI, depending on time-up)
CompactFlash Slot		TYPE I×1
RTC/CMOS		Life of lithium backup battery: 10 yr. minimum (25°C) Accuracy of realtime clock: less than 3 min./month
Power supply	Input power voltage	5VDC ±5%
	Max. power consumption	7.5W
External dimensions (mm)		52.4(W)×64.7(D)×94.0(H)
Weight		200g

Table 2.2. Installation Environment

Parameter		Requirement description
Operating temperature		0 to 50°C
Storage temperature		-10 to 60°C
Humidity		10 to 90%RH (No condensation)
Floating dust particles		Not to be excessive
Corrosive gases		None
Line-Noise resistance	Line-noise *1	AC line/2kV, Signal line/1kV (IEC1000-4-4Level 3, EN61000-4-4Level 3)
	Static electricity resistance	Contact discharge/4kV (IEC1000-4-2Level 2, EN61000-4-2Level 2)
		Atmospheric discharge/8kV (IEC1000-4-2Level 3, EN61000-4-2Level 3)
Vibration resistance	Sweep resistance	10 to 57Hz/semi-amplitude 0.15mm, 57 to 150Hz/2.0G
		80 minutes each in X, Y, and Z directions (JIS C0040-compliant, IEC68-2-6-compliant)
Impact resistance		15G, half-sine shock for 11ms in X, Y, and Z directions (JIS C004-compliant, IEC68-2-27-compliant)
Grounding		Class D grounding (previous class 3 grounding)

System Configuration

Example of System Configuration

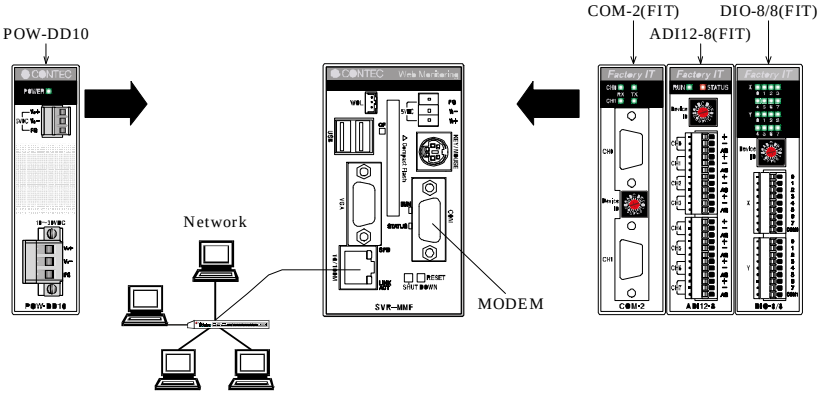


Figure 2.1. System Configuration Diagram

External Dimensions

SVR-MMF(FIT)

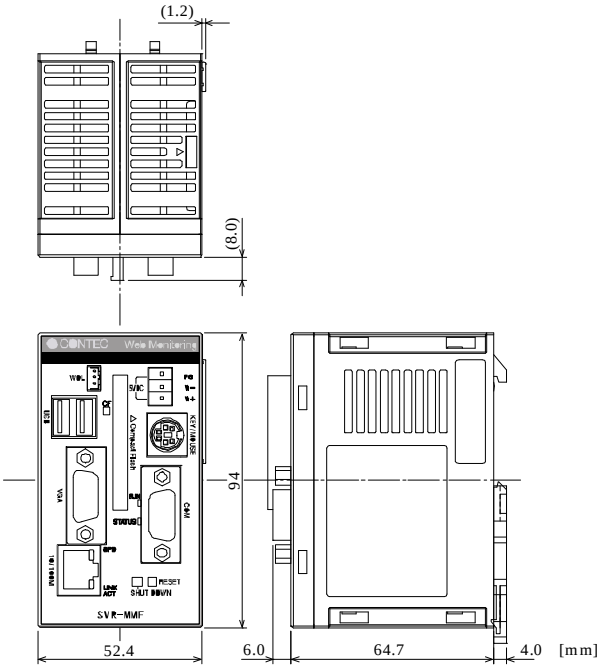


Figure 2.2. SVR-MMF(FIT) External Dimensions

3. Functions of the Various Components

Nomenclature

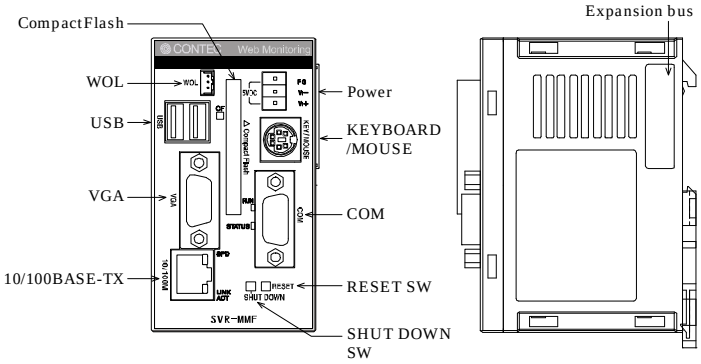


Figure 3.1. Nomenclature

Table 3.1. Functions of the Various Parts

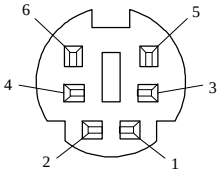
Name	Function	Page
Keyboard/MOUSE	Keyboard/Mouse connector (MINI-DIN 6-pin)	12
COM	Serial port connector (D-SUB 9-pin)	13
VGA	CRT connector (HD-SUB 15-pin)	14
CompactFlash	Compact FLASH insertion connector	14
RUN	Status display LED	15
STATUS	Status display LED	15
CF	Compact FLASH access verification LED	15
SHUT DOWN SW	SHUT DOWN	15
RESET SW	Resets the CPU.	
USB	USB connector	15
10/100BASE-TX	RJ-45 connector	16
WOL	Not used	
POWER	Power supply connector (MC1, 5/3-G-3, 5 PHOENIX CONTACT)	17
Expansion bus	FactoryIT series connector (0.6mm pitch, 80-pin (FX-8C series, HIROSE))	

Keyboard/Mouse Interface

The system is equipped with a keyboard/mouse connector.
The name of the connector is KEY/MOUSE (MINI-DIN 6P).

Table 3.2. Keyboard/Mouse Connector

Connector type	TCS7910-16-201 (Hoshiden) or equivalent



Pin No.	Signal	Pin No.	Signal
1	+KBD DATA	5	+KBD CLK
2	+MOUSE DATA	6	+MOUSE CLK
3	GND	SHIELD	GND
4	+5.0V DC	---	

Serial Port Interface

RS-232C port (COM)

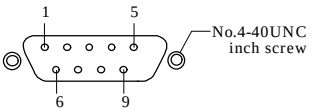
The system is equipped with one RS-232C-compliant serial port connector (serial port A: COM).

Note!

The serial port of this module is not supporting RI signal.

Table 3.3. Serial Port Connector

Connector used on the system unit	D-SUB 9 core (MALE)



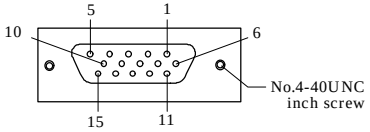
Pin No.	Signal	Meaning	Direction
1	CD	Carrier detect	Input
2	RD	Received data	Input
3	TD	Transmitted data	Output
4	DTR	Data terminal ready	Output
5	GND	Signal ground	-----
6	DSR	Dataset ready	Input
7	RTS	Request to send	Output
8	CTS	Clear to send	Input
9	RI	Ring indicator (Not connected)	-----

CRT Interface

The system is equipped with a connector for the CRT. The name of the connector is VGA(HD-SUB 15P).

Table 3.4. CRT Connector

Connector type	15pin HD-SUB (MALE)



Pin No.	Signal	Pin No.	Signal
1	RED	9	N.C.
2	GREEN	10	GND
3	BLUE	11	N.C.
4	N.C.	12	N.C.
5	GND	13	HSYNC
6	GND	14	VSYNC
7	GND	15	N.C.
8	GND		

CompactFlash Slot

The system is equipped with a slot for CompactFlash-compliant CompactFlash cards [TYPE I x 1 size], which is available for memory cards only. A CompactFlash card loaded with monitoring and control tools is inserted in the unit.

Power supply for the card

Available card voltages and current values for each slot are listed below:

Table 3.5. Power Supply for the Card

Voltage	Current (Max.)
+5V	500mA/Slot
+3.3V	Not supplied
+12V	Not supplied

RUN LED

Blinks while the unit is running.

The LED stops blinking and remains illuminated when SHUTDOWN completes after you press the SHUTDOWN switch. Wait until the LED stops blinking before turning off the power.

STATUS LED

Illuminates when an error occurs.

CF LED

This light comes on when the CompactFlash is accessed.

SHUTDOWN SW

Used to shutdown the system. The RUN LED illuminates when the power is able to be turned off.

USB Port

It cannot be used.

Ethernet

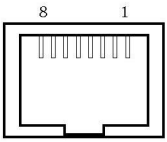
The SVR-MMF(FIT) is equipped with a Fast-Ethernet card.

- Network mode: 100BASE-TX/10BASE-T
- Transmission rate * : 100M/10M bps
- Max. network path length: 100m/segment
- Controller: 82559(Intel)

  * Operation at 100 Mbps requires a Category 5 cable.

Table 3.6. Ethernet Connector

Connector type	RJ-45



Pin No.	Signal	Meaning
1	TD+	Transmitted data (+)
2	TD-	Transmitted data (-)
3	RD+	Received data (+)
4	N.C.	Not connected
5	N.C.	Not connected
6	RD-	Received data (+)
7	N.C.	Not connected
8	N.C.	Not connected

Network status display LED:

LINK/ACT: Normal connection, data send/receive displayed

SPEED: 10M/100M operation indicator

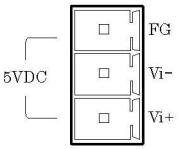
POWER

This is a power supply connector

- Power supply: 5.0V±5%

Table 3.7. Power Supply Connector

Connector type	MC1,5/3-G-3,5(PHOENIX CONTACT)



Pin No.	Signal	Meaning
1	FG	Frame ground
2	Vi-	Power Supply (GND)
3	Vi+	Power Supply (5V)

Available connectors (included):
MC1,5/3-ST-3,5(PHOENIX CONTACT)

4. Hardware Setup

Getting Started

Follow the following procedures to set up the SVR-MMF(FIT):

STEP1 Connecting the F&eIT series module
By referring to this chapter connects the F&eIT series module to the SVR-MMF(FIT). When using the SVR-MMF(FIT) on a standalone basis, go to STEP2.

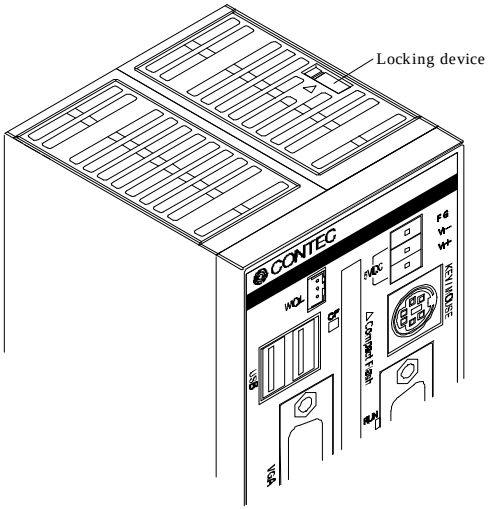
STEP2 Connecting the cables
Connect the LAN cable and any modem or other external device cables to the SVR-MMF(FIT).

STEP3 Turning on the power
After re-checking that STEPS 1 to 2 have been correctly performed, turn on the power. If something goes wrong after the power is turned on, immediately turn off the power and make sure that the system is correctly set up.

Mounting the Module

Stack Connection Locking Devices

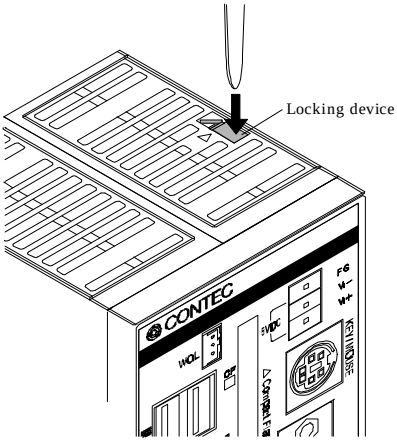
The module contains connecting locking devices (▲ mark, two units at the top and bottom).



How the stack connection locking device works

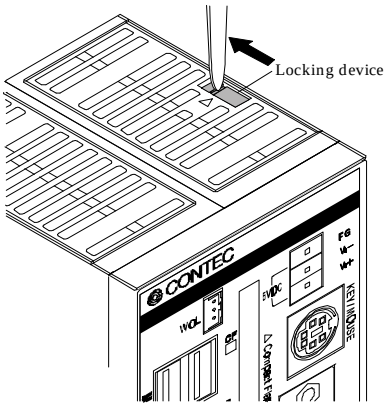
- Locking

  Push the pawl of the locking device with a tool that has a slender tip downward from above to open the spring for the locking device (the groove moves toward you).



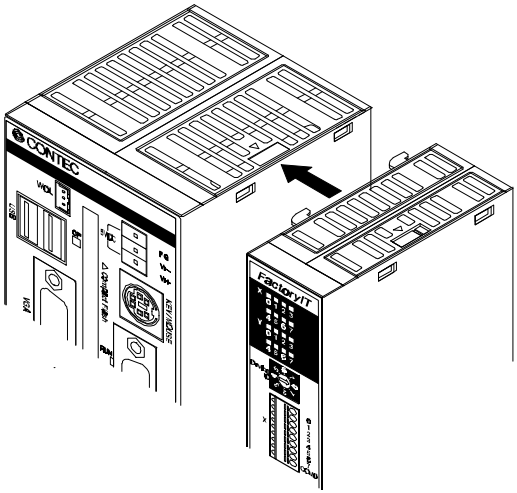
- Unlocking

  Push the groove of the locking device with a tool that has a slender tip in the direction of the arrow until the device is locked.



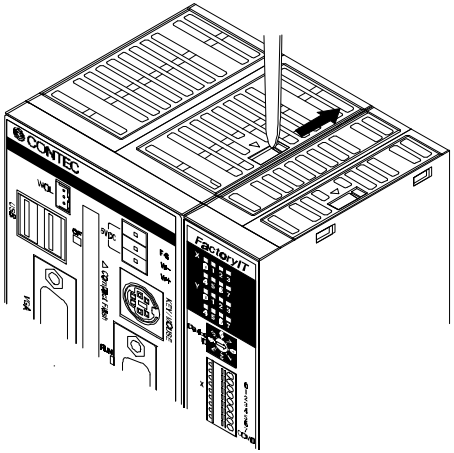
Connecting the module

Inserting the stack hook by aligning it with the hook insertion inlet for the other device automatically locks the module. (If a stack connector protective cover is attached, the connection operation should be performed after the cover is removed.)



Removing the module

Unlock the locking device at the top and the bottom. Remove the connected module from the hook.



Mounting on a DIN Rail

Mounting procedure

(1) Pushing the fixing hook with a flat-blade screwdriver renders it into a lock-enabled condition (this should be done on all connected modules).

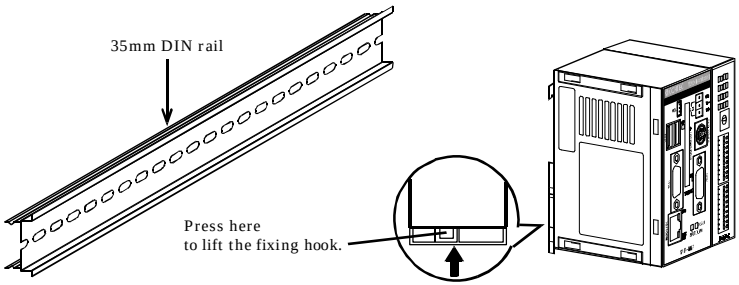


Figure 4.1. Mounting on a DIN Rail ***< 1 / 3 >***

(2) Hook the unit (an object consisting of a controller and a module) from the upper part of the DIN rail, and press the lower part of the unit onto the DIN rail.

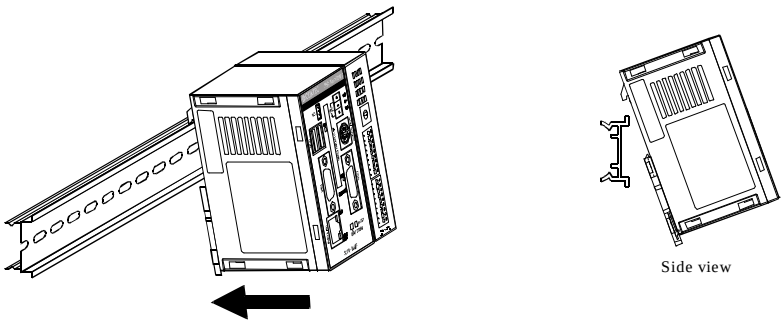


Figure 4.1. Mounting on a DIN Rail ***< 2 / 3 >***

(3) The fixing hook is automatically locked, and the module can be mounted in one-touch.

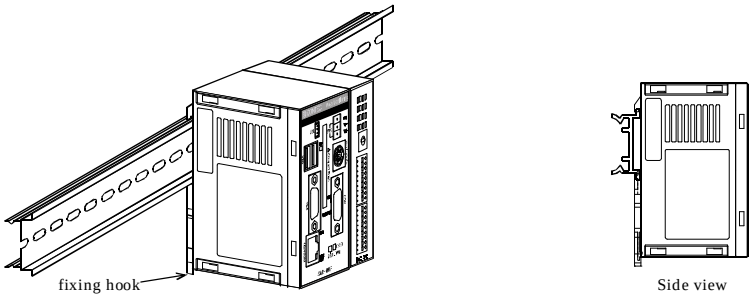


Figure 4.1. Mounting on a DIN Rail ***< 3 / 3 >***

Removal procedure

(1) Lower the fixing hook for the unit to unlock it. (This operation should be performed on all connected modules.)

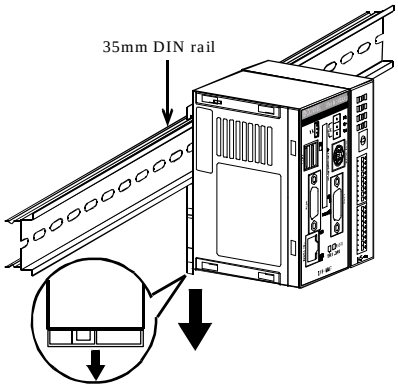


Figure 4.2. Removing the Module from the DIN Rail ***< 1 / 3 >***

(2) With the fixing hook unlocked, pull the lower part of the unit toward you.

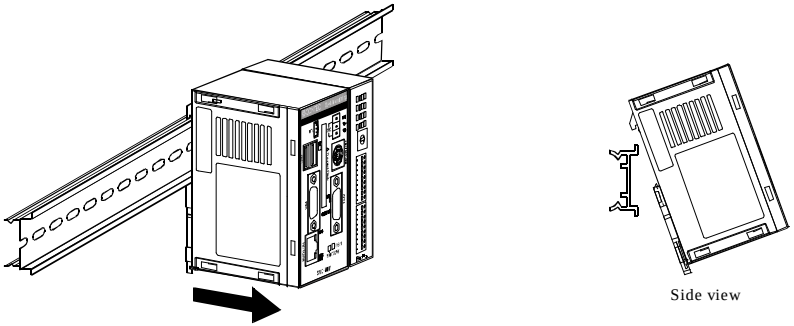


Figure 4.2. Removing the Module from the DIN Rail
< 2 / 3 >

(3) By lifting the unit, you can easily remove it from the DIN rail.

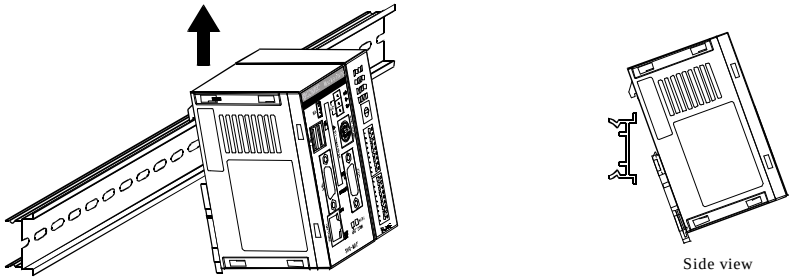


Figure 4.2. Removing the Module from the DIN Rail
< 3 / 3 >

Note!

Any operation involving the disconnection of modules in a unit (in which multiple modules are connected) that is attached to a DIN rail should be performed after the unit is removed from the DIN rail.

Connection Method

Supplying the Power to the Controller Module

(1) The DC-DC power supply unit and the controller module can be cable-connected using the detachable connector that is provided on either the unit face or module face. Use a cable no longer than 50cm (AWG24 to 16). (No longer than 20cm for AWG28 and no longer than 35cm for AWG26). (compatible cables: AWG28 to 16).

Note!

The power for the device module is supplied from the stack connector.

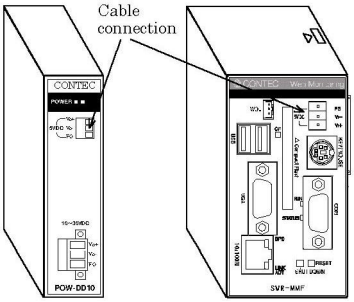


Figure 4.3. Connecting the Controller Module to the DC-DC Power Supply Unit

Installation Conditions

The system can be installed in either orientation (1) or (2). Orientation (3), which does not lend itself to heat dissipation, should be avoided. A minimum clearance of 50 mm at the top and 10 mm on the sides should be provided between the system unit and any surrounding objects. If using orientation (1), do not connect any other modules. If using orientation (2), other modules may be connected but ensure a clearance on the bottom side of at least 20mm.

Installation orientation (stand-alone unit)

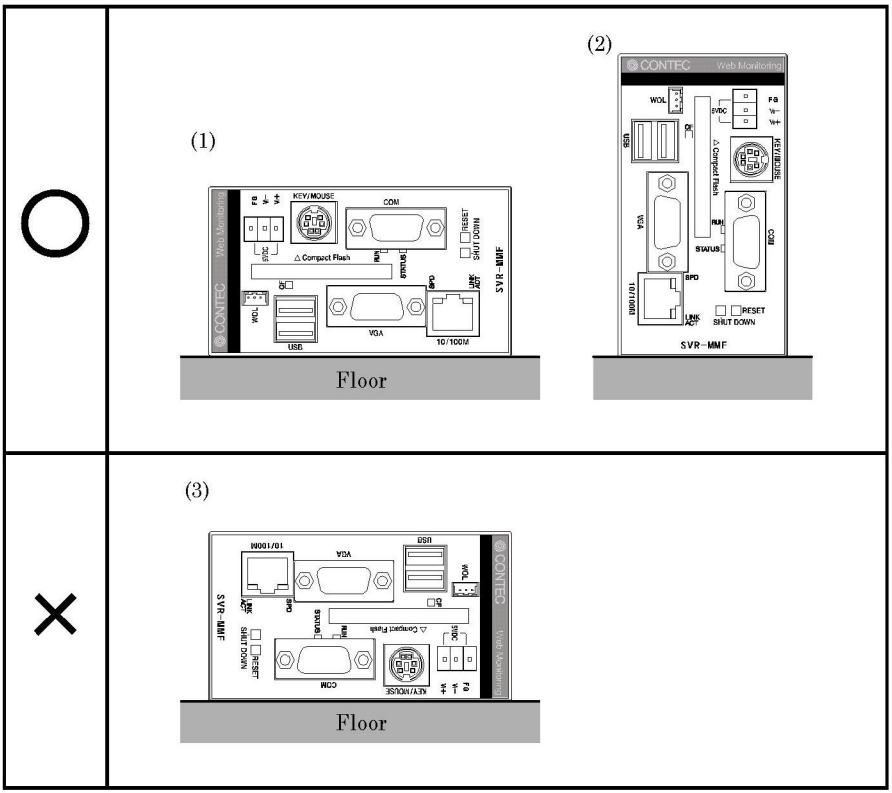


Figure 4.4. Installation Orientation

Spacing between the system unit and any surrounding objects

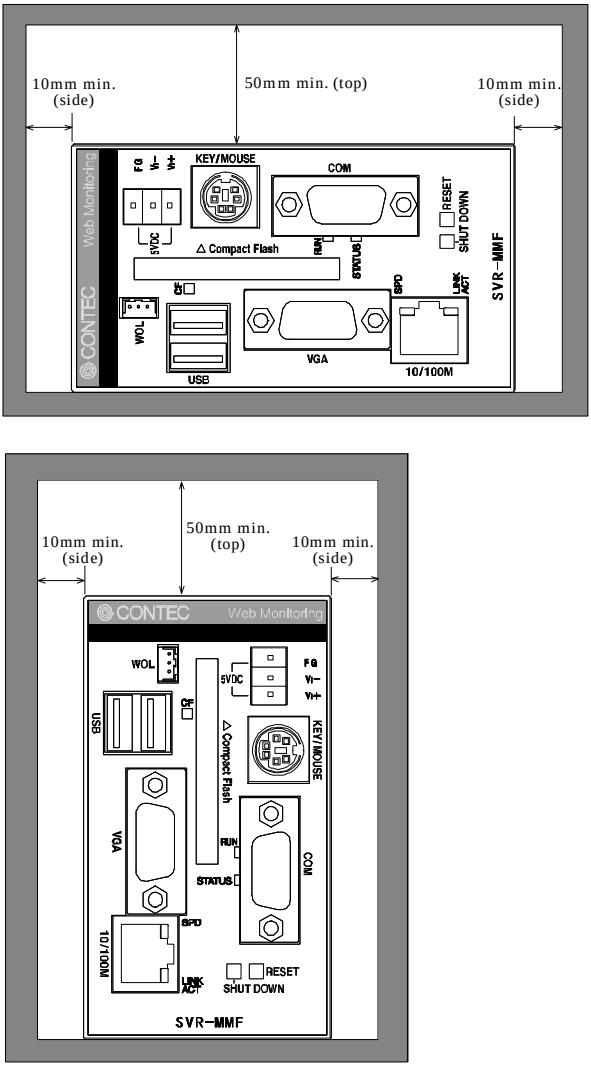


Figure 4.5. Spacing between the System Unit and Any Surrounding Objects

5. System Setup

Setting Procedure

The IP address set for the Monitoring & Control Server must not be already used by an I/O Assist Server, I/O controller, or other unit.

The default factory settings are IP address = “10.1.1.1” and network mask = “255.0.0.0”.

(1) Connect the power and network cables to the Monitoring & Control Server Unit.

(2) The Monitoring & Control Server searches for any I/O Assist Servers and I/O controllers and starts collecting input data automatically.

(3) By connecting to the Monitoring & Control Server Unit from the browser running on the host controller, you can view the input data.
Set the IP address and the network mask so that the host controller belongs to the same network as the Monitoring & Control Server Unit.

(4) For procedures on how to view input data using a browser, see the section entitled "Verifying the Operation".

Verifying the Operation

The Monitoring & Control Server continuously reads the latest data from the devices connected to the I/O Assist Server and I/O Controller Units on the same network.

Connecting from the host computer to the Assist Server using a browser to create and view a monitoring screen.

State Check from a Browser

Operation procedure

(1) Start the browser. In the browser's address field, enter the IP address that was set on the Monitoring & Control Server Unit.
Example: For an IP address 10.1.1.1, enter the following: "http://10.1.1.1/".

(2) The screen of "Main Menu" is displayed.

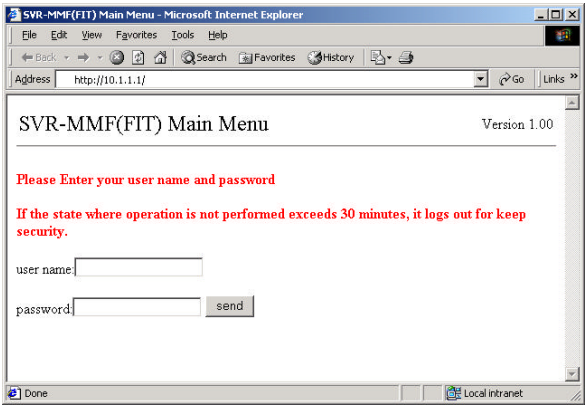

SVR-MMF(FIT) Main Menu - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Search Favorites History
Address http://10.1.1.1/
Go Links
SVR-MMF(FIT) Main Menu
Version 1.00
Please Enter your user name and password
If the state where operation is not performed exceeds 30 minutes, it logs out for keep security.
user name:
password:
send
Done
Local intranet

Figure 5.1. Password Input

The user name "mmf" password "mmf" is registered at the time of shipment.

Use standard lower case characters.

(3) A menu is displayed.

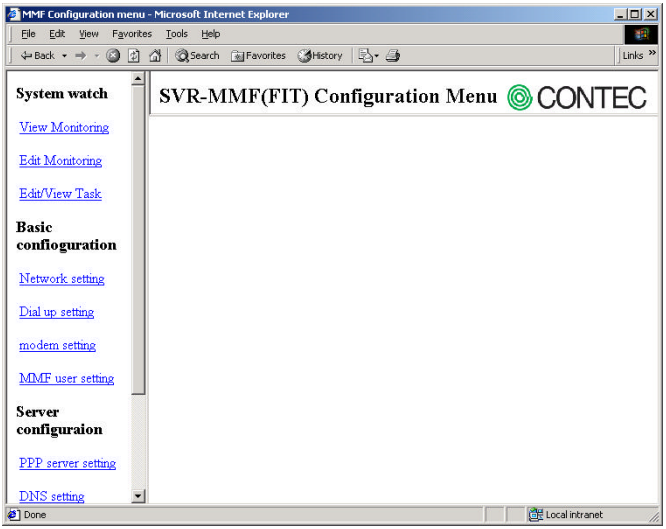


Figure 5.2. Whole Screen

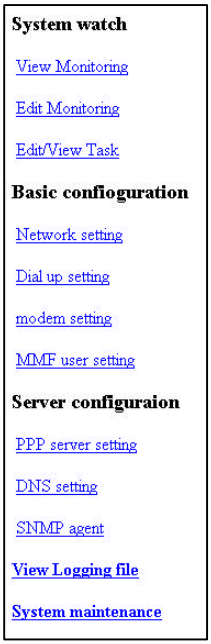


Figure 5.3. Menu

System watch

- Used to edit monitoring and execution tasks.

Basic configuration

- Used to set network, dial-up, and other parameters.

Server configuration

- Used to setup the server function.

View Logging file

- Displays error information during operation.

System maintenance

- Used for backing up the setup data, etc.

(4) Monitoring display
The monitoring screen appears.
See “Chapter 6 Creation and Display of a Monitoring Screen”.

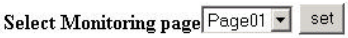


Figure 5.4. Monitoring Display

(5) Monitoring creation
The monitoring screen appears.
See “Chapter 6 Creation and Display of a Monitoring Screen”.

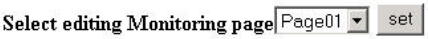


Figure 5.5. Monitoring Creation

(6) Task creation and a display

Click here to display the task edit screen.
See “Chapter 7 Creation and a Display of a Processing Task”.

(7) Network setup

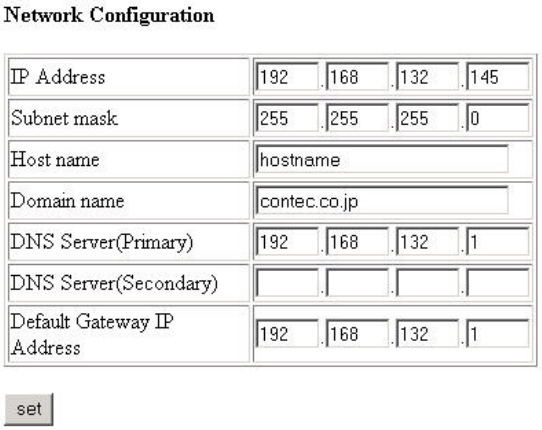


Figure 5.6 Network Configuration

IP Address-Subnet mask:
Enter the IP address and subnet mask you wish to set for the network port. The default factory settings are IP address = "10.1.1.1" and subnet mask = "255.0.0.0".

When finished, click [Set] to save the settings.
The new settings become active from the next time the unit is restarted.

(8) Dial up configuration

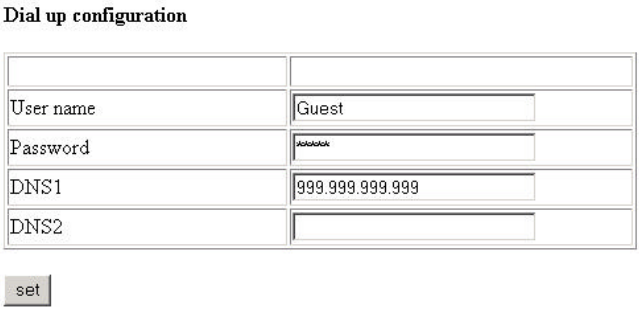


Figure 5.7 Dial up Configuration

If connecting a modem to the COM port and dialing up to a provider, enter the "User name" and "Password" issued by the provider.
If you need to specify a DNS, enter the IP address of the DNS.
Click [Set] when you have finished.
You do not need to enter these settings if not using the dial-up function.

(9) Modem configuration

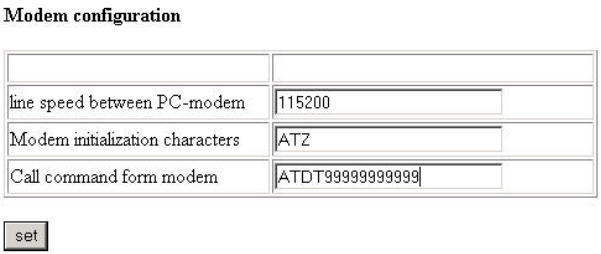


Figure 5.8. Modem Configuration

Set these parameters if connecting a modem to the COM port and dialing up to a provider.

Line speed between PC-modem:
Enter the baud rate supported by the modem.
unit: bps

Modem initialization characters:
Set the modem initialization command. Refer to the modem's manual.

Call command form modem:
Enter ATDT if using a "tone dialing" line or ATPT if using a "pulse dialing" line. Enter the provider's telephone number after ATDT.

Click [Set] when you have finished.
You do not need to enter these settings if not using the dial-up function.

(10) MMF user configuration

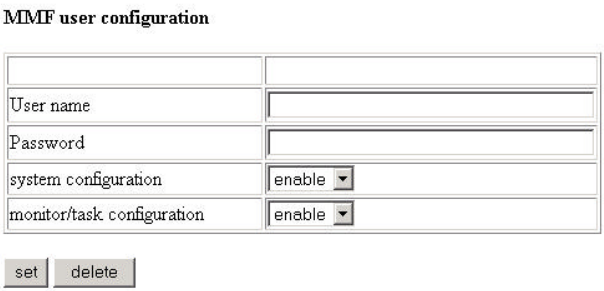


Figure 5.9. MMF user Configuration

Figure 5.10. MMF User Configuration (A Registered User Name)

Register or delete the users able to access the setup screens (screens described in this chapter) from the web.
The factory default settings are user name = “mmf”, password = “mmf”.

For each user:

Specify whether changing the system configuration is “enabled” or “disabled”.

Specify whether changing the monitor/task configuration is “enabled” or “disabled”.

Click [Set] when you have finished.

Enter the user name and click [Delete] to delete a registered user.

(11) PPP Server configuration

- PPP Server configuration

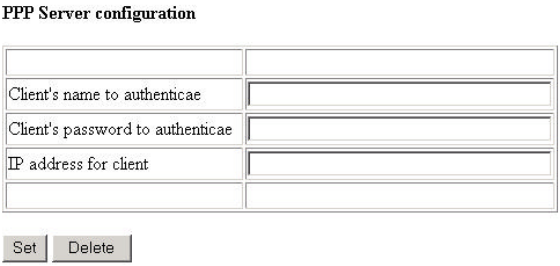


Figure 5.11. PPP Server Configuration

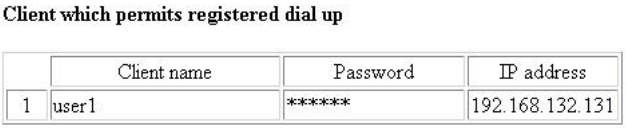


Figure 5.12. PPP Server Configuration

Enter the [Client name] and [Password] for permitting access to the dial-up connection.

- DNS configuration

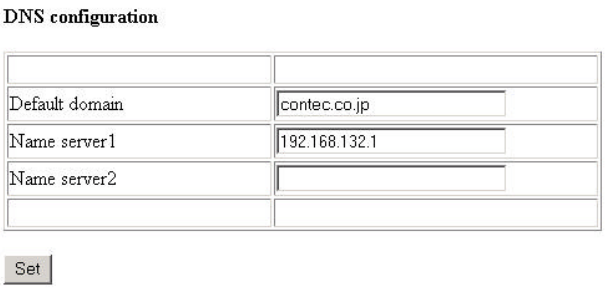


Figure 5.13. DNS Configuration

Specify the DNS to be used by the dial-up client.

(12) SNMP Agent Configuration

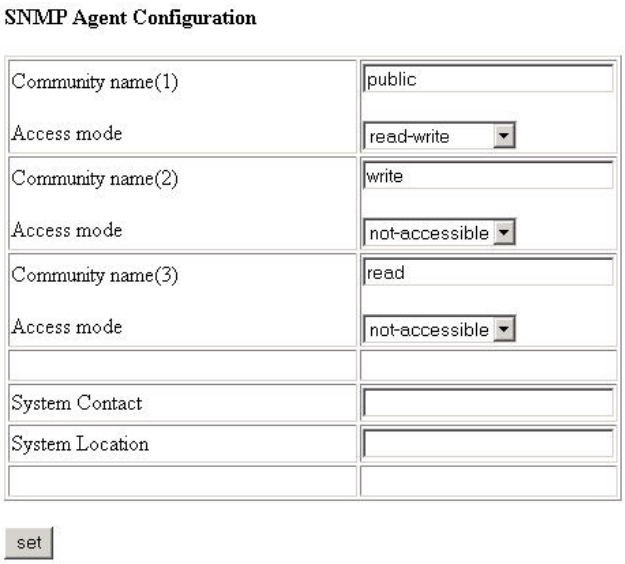


Figure 5.14. SNMP Agent Configuration

Enter the information to be provided to SNMP.
Separate access permission can be specified for community names (1), (2), and (3).

(13) View Logging file

Figure 5.15. View Logging File

Select one of the following log files:

- Message Log
- System Log

then click [Set] to display the file.

The logs are displayed in chronological order.

(14) System maintenance menu

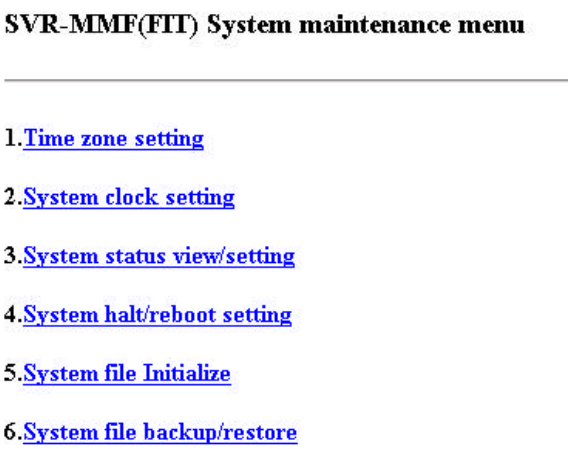


Figure 5.16. System Maintenance Menu

Used for system maintenance and to backup and restore the settings.

(15) Time Zone setting

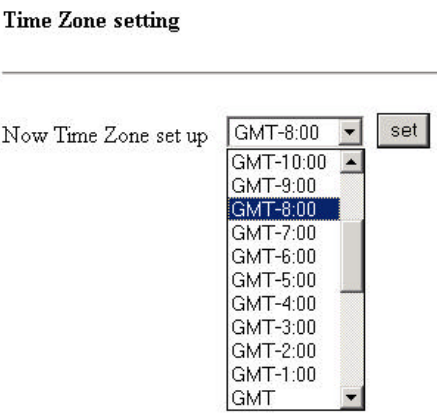


Figure 5.17. Time Zone Setting

Set the time zone where the unit is installed.

(16) System clock setting

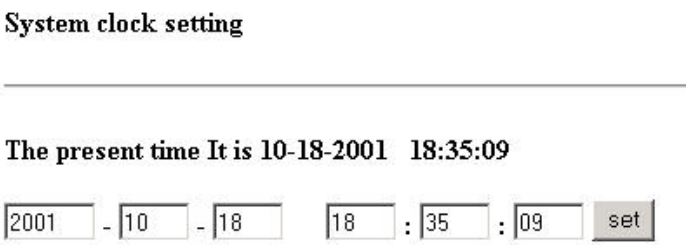


Figure 5.18. System Clock Setting

Set the system time.

(17) System State configuration/view

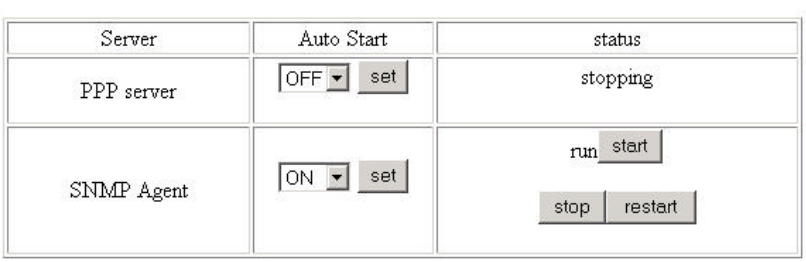


Figure 5.19. System State Configuration/View

Used to set and display the status of the server functions.

- PPP server : Server for accepting dial-up connections
- SNMP Agent : Server that responds to SNMP queries.

Only set Auto Start “ON” for the functions you intend to use.

(18) MMF Server Configuration

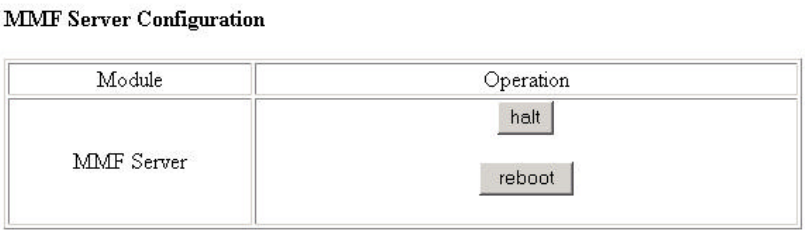


Figure 5.20. MMF Server Configuration

To turn off the power, click [halt]. When the RUN LED stops blinking and stays illuminated, it is safe to turn off the power.

After changing the settings, click [reboot] to apply the new settings. This shuts down the system then restarts using the new settings.

Rebooting is also necessary to apply the settings in "(7) Network setup" only.

(19) System file Initialize

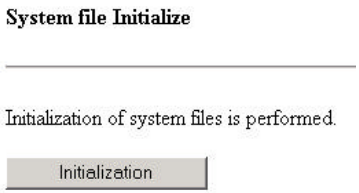


Figure 5.21. System File Initialize

This restores all settings to their factory default values.

This also deletes any user-created monitoring screens or tasks.

(20) System file backup/Restoration

Figure 5.22. System File Backup/Restoration

You can make a backup of the setup data.

- Monitoring data: Setup data for created monitoring screens.
- Task data: Setup data for created tasks.
- Setup data: Setup data for Mail, Ftp, and File resources used by tasks.
- MMF user data: The user registration data set in “(10) MMF user configuration”.

Select the data to backup then click [download].

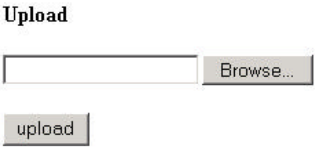


Figure 5.23. System File Restoration

You can load previously backed up data to restore the settings

Select the backup file to load, then click [upload] to transfer the file.

6. Creation and a Display of a Monitoring Screen

By connecting to the Monitoring & Control Server from the host computer using a browser, you can create and view a monitoring screen.

Operation Procedure

Clicking on page number button of [Data Monitoring (Calling Applet)] brings up the following screen:

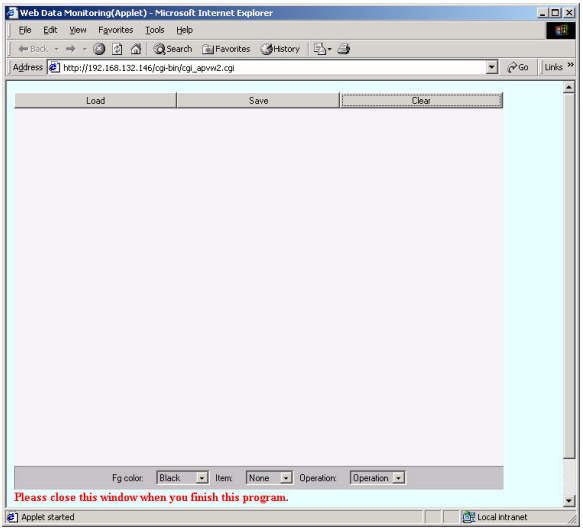


Figure 6.1. Menu

Menu bar functions:

Load:	Loads and displays a previously saved page.
Save:	Saves the monitoring screen that has been created.
Clear:	Clears the current monitoring screen.
Fg Color:	Selects the color in which the screen is to be drawn.
Item:	Selects the component to be laid out.
Operation:	Selects the specific operation to be performed.

Load: Loads and displays a previously saved page.

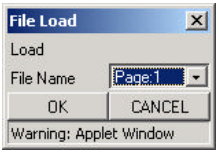


Figure 6.2. File Load

Save: Saves the monitoring screen that has been created.

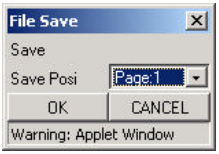


Figure 6.3. File Save

Clear: Clears the current monitoring screen.

Figure 6.4. Clear

Fg Color: Selects the color in which the screen is to be drawn.

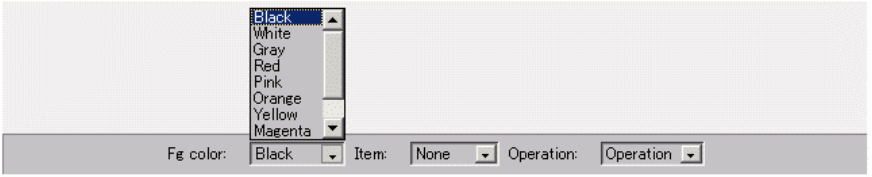


Figure 6.5. Fg Color

Item: Selects the component to be laid out.

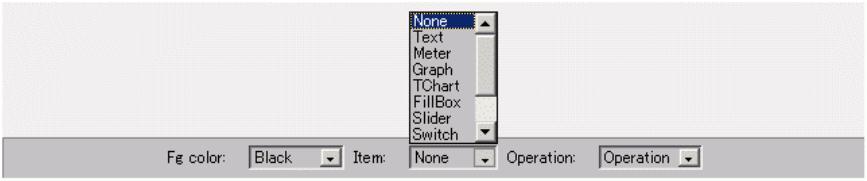


Figure 6.6. Item

Operation: Selects the specific operation to be performed.

Figure 6.7. Operation

Basic Operations

(1) Laying out a component
In [Item], select the desired component, and click on it on the screen in order to lay it out.

Example: Laying out a [Meter]

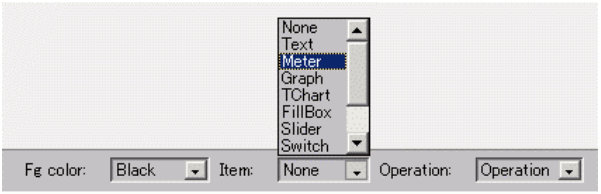


Figure 6.8. Item

↓

Figure 6.9. Item Meter

Single-clicking on the screen displays the meter.

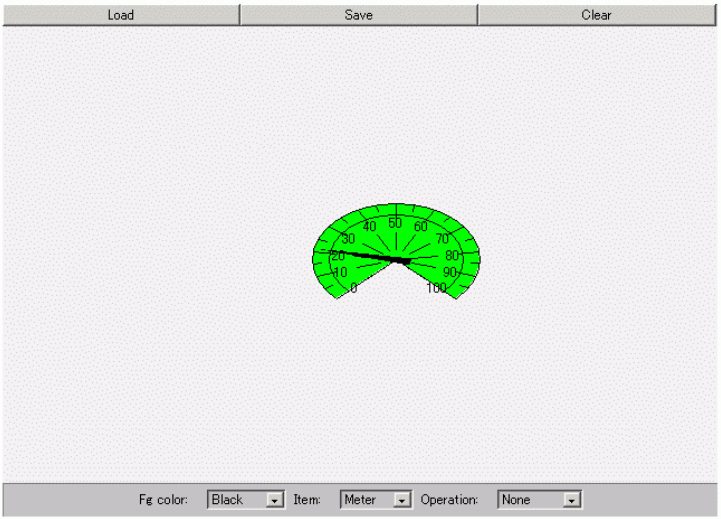


Figure 6.10. Meter

(2) In [Operation], select [Properties], and click on the component to open the [Properties] box.

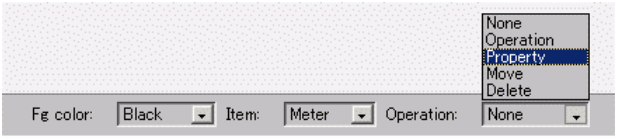


Figure 6.11. Operation

↓

Figure 6.12. Operation Property

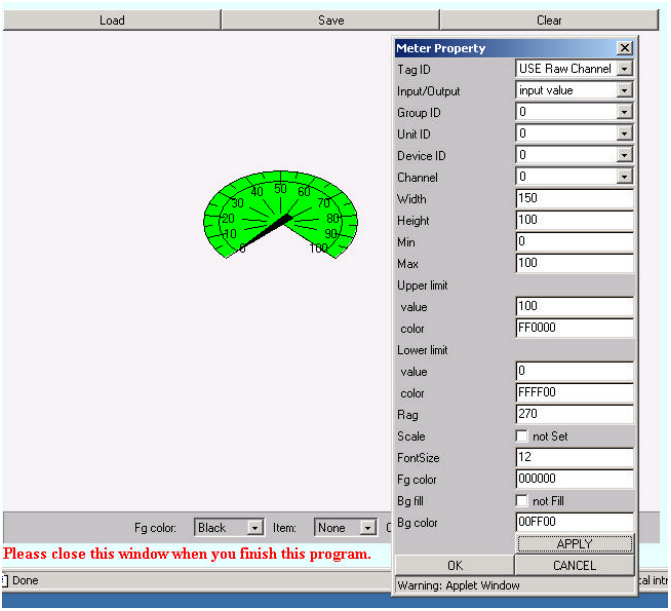


Figure 6.13. Property

Each component to be laid out is associated with its own Unit ID, Device ID, and Channel parameters for display purposes.

(3) You can also move a component by selecting [Move] in [Operation].

Figure 6.14. Operation

↓

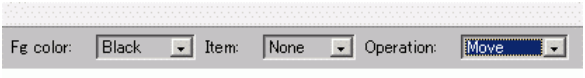


Figure 6.15. Operation Move

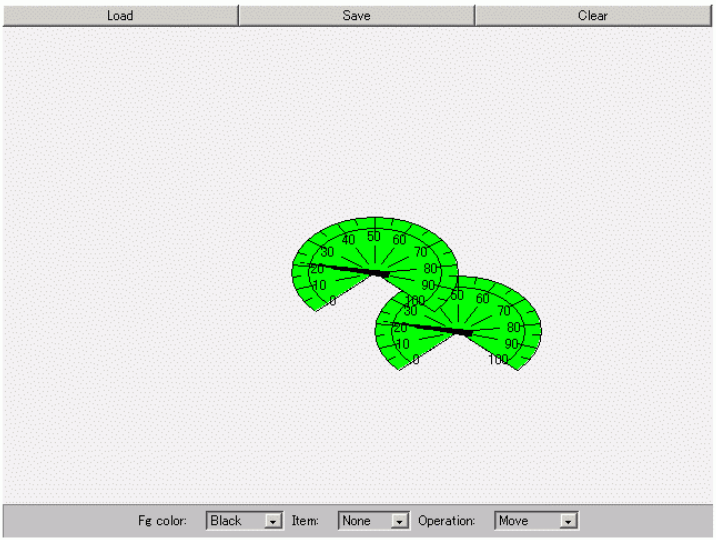


Figure 6.16. Move

By left-clicking the mouse on the component and dragging the mouse, you can move the components. Releasing the mouse fixes the component at the current mouse position.

(4) You can delete a component by selecting [Delete] in [Operation].

Figure 6.17. Operation

↓

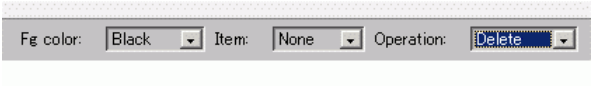


Figure 6.18. Operation Delete

Left-clicking on the component deletes it.

(5) A monitoring screen can be created by laying out the various components according to the procedures described above.

Once a monitoring screen is created, you can display a dialog by selecting [Save] on the menu in order to save it on a desired page.

You can bring up a previously saved page by selecting [Load] on the menu to display a dialog and select the desired page.

Types of Available Components and Their Overview

Components that can be selected from [Item] on the Menu bar are described below.
Parameters that are common to the various components are also explained below.

Table 6.1. Parameter List

Parameter	Description
Tag ID	Selects the item to display. TAG00 to TAG99 display the values of the variables (TAG numbers) used in tasks. USE Raw Channel specifies a device channel. This is the digital input value from the device.
Input/Output	In terms of Input/Output, select [Output value] for displaying values from an output-capable module. The default is [Input value], which indicates an input value.
Unit ID, Device ID, Channel	Select the I/O module to be monitored.
Width	Specify the width of the component.
Height	Specify the height of the component.
Min	Specify the minimum value to be displayed.
Max	Specify the maximum value to be displayed.
Upper limit	Specifies the upper limit display color.
Lower limit	Specifies the lower limit display color.
Scale (not Set)	Checking this item suppresses the Min/Max range scaling.
FontSize	Specify the font size to be used in the component.
Fg color	Specify the display color to be used. This parameter is specified in hexadecimal, where a group of two digits, from left to right, indicates an RGB color, as follows: 000000: black; FFFFFF: white; FF0000: red; 00FF00: green; 0000FF: blue.
Bg fill (not Fill)	The component is not to be filled with the background color.
Bg color	Specify a background color in hexadecimal, using the same conventions as in Fg color.

(1) Text: This is a component on which fixed text is displayed.

External view of the component

Properties dialog box

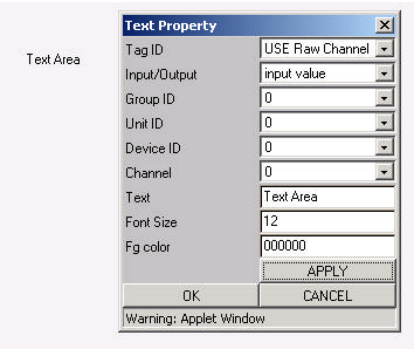


Figure 6.19. Text

Displays the fixed character string that is assigned to the [Text] field.
The Font Size can be changed.
By specifying a Unit ID, a Device ID, a Channel, and [%d] in [Text], you can display the input values in decimal.
Similarly, by specifying a Unit ID, a Device ID, a Channel, and [%x] in [Text], you can display the input values in hexadecimal.

(2) Meter: Displays the [meter] data type.

External view of the component

Properties dialog box

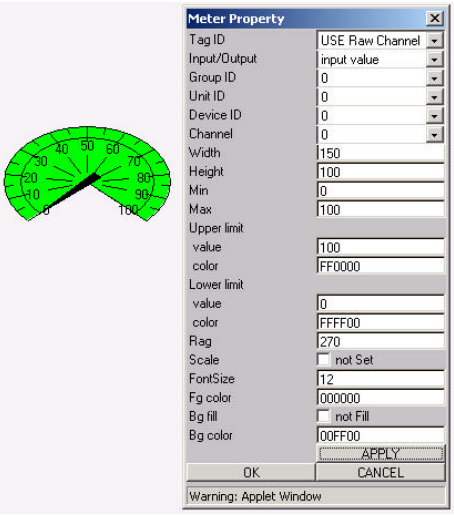


Figure 6.20. Meter

- Rag: Specify an arc angle for a meter display in a range from 90 to 360.

(3) Graph: Graph display

External view of the component

Properties dialog box

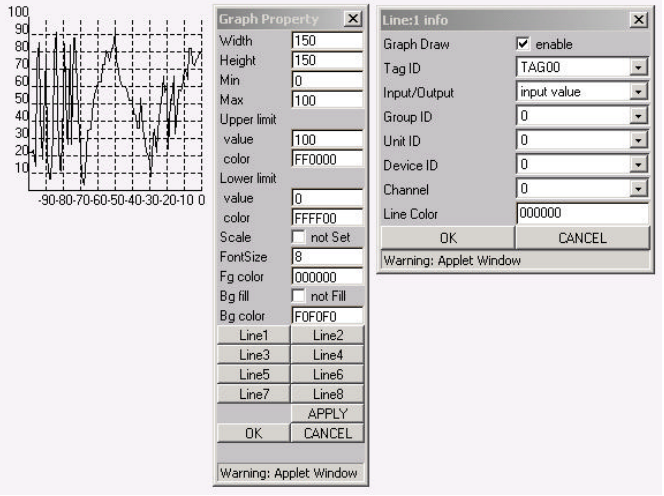


Figure 6.21. Graph

Indicates changes in I/O values in a polygon graph format.
An input channel can be specifying by clicking on the [Line] button and specifying a value in units of "Lines". A maximum of eight channels can be displayed simultaneously.
The horizontal axis represents up to 100 count values for the scanning interval.

(4) Tchart: Timing chart display

External view of the component

Properties dialog box

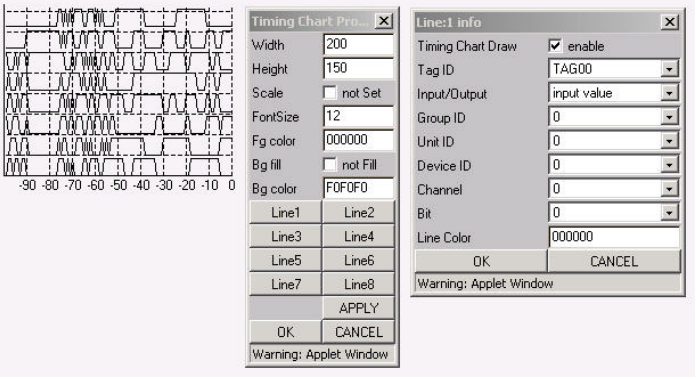


Figure 6.22. Tchart

Displays changes in I/O bit on/off patterns in a polygon graph format.

An input channel can be specifying by clicking on the [Line] button and specifying a value in units of "Lines". A maximum of eight channels can be displayed simultaneously.
The horizontal axis represents up to 100 count values for the scanning interval.

(5) FillBox: Fill box display

External view of the component

Properties dialog box

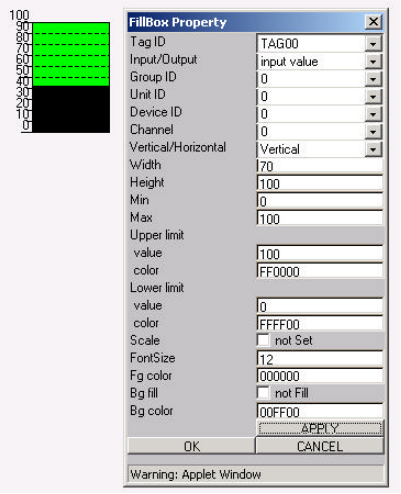


Figure 6.23. FillBox

- Vertical/Horizontal:
  Switches the display orientation between horizontal and vertical orientations.
  The default is [Vertical].

(6) Slider: Slide switch

External view of the component

Properties dialog box

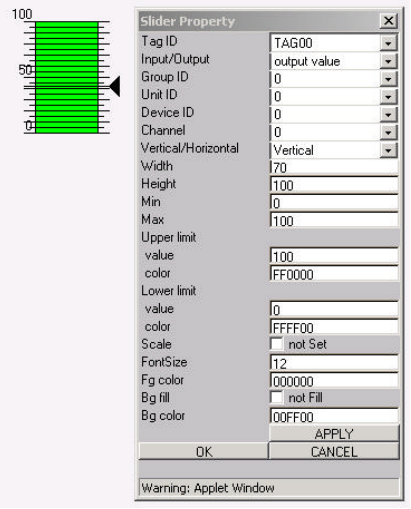


Figure 6.24. Slider

- Vertical/Horizontal:
  Switches the display orientation between horizontal and vertical orientations.
  The default is [Vertical].

(7) Switch: Switch display

External view of the component

Properties dialog box

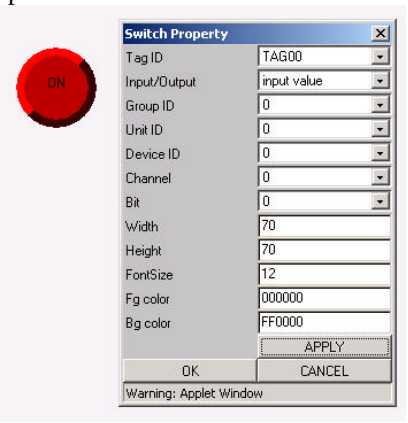


Figure 6.25. Switch

This switch displays I/O bits.
In terms of Input/Output, selecting [Input value] displays round buttons, which indicate input values. Selecting [Output value] displays square switches, which indicate output values.

(8) Seg7: Segment-7 display

External view of the component

Properties dialog box

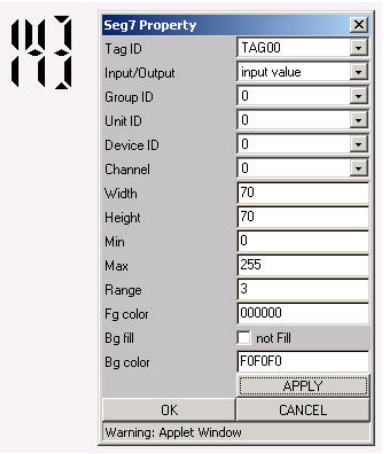


Figure 6.26. Seg7

- Range:
  Specify the number of digit positions to be made available for display purposes.

(9) Volume: Volume display

External view of the component

Properties dialog box

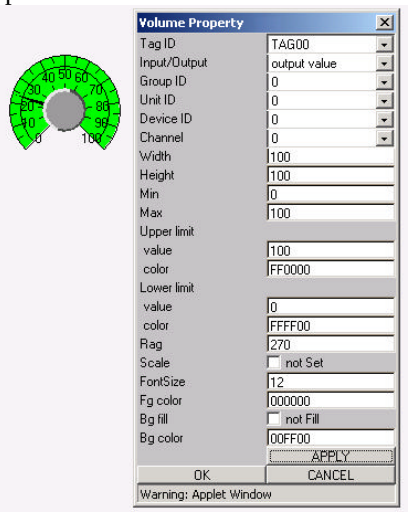


Figure 6.27. Volume

- Rag :
  Specify a meter display arc angle in a range from 90 to 360.
  In terms of Input/Output, selecting [Output value] causes a meter to be displayed.

(10) Status: Unit device status display

External view of the component

Properties dialog box

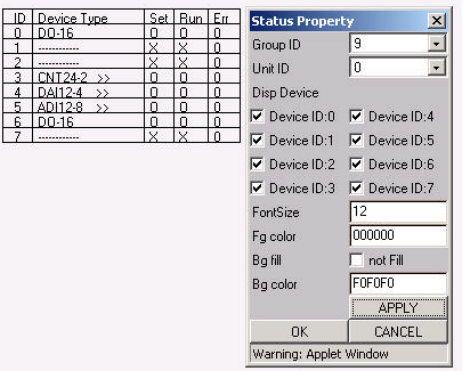


Figure 6.28. Status

- Unit ID:
  Specify the Unit ID about which the module installation status is to be displayed.
- Disp Device:
  Assign the desired Device ID from Device IDs 0 to 7.
- When the monitoring screen is running under the [Operation] mode, clicking on the [Device Type] field brings up a setup dialog for each device.

Creation screen image

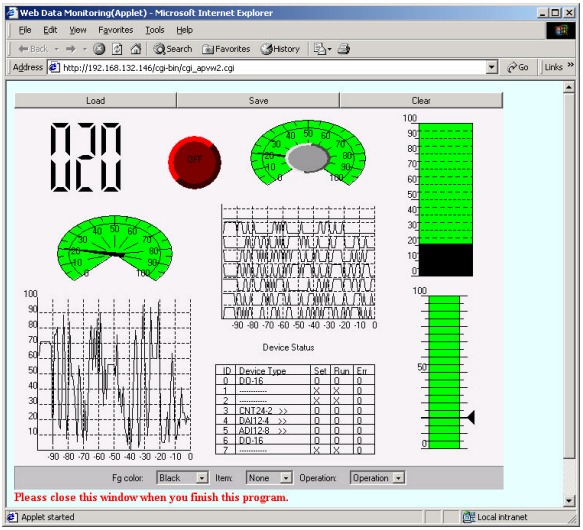

Web Data Monitoring(Applet) - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Address http://192.168.132.146/cgi-bin/cgi_apvw2.cgi
Load
Save
Clear
OFF
Device Status
ID Device Type Set Run Err
0 DO-16 0 0 0
1 ..... X X 0
2 ..... X X 0
3 CNT24-2 >> 0 0 0
4 DAI12-4 >> 0 0 0
5 ADI12-8 >> 0 0 0
6 DO-16 0 0 0
7 ..... X X 0
Fg color: Black Item: None Operation: Operation
Pleass close this window when you finish this program.
Applet started
Local intranet

Figure 6.29. Creation screen

Monitoring-Screen Operation

The following graphical buttons can be displayed on monitoring screens.

- Slider
- Switch
- Seg7
- Volume
- Status

(1) Slider

By left-clicking on the triangle bar and sliding it, you can change the output from the slider.

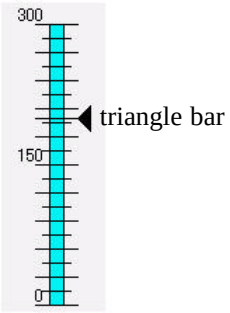


Figure 6.30. Slider

(2) Switch

Displays the status of the bit that was set.
Left-clicking on an ON bit turns it off.
Left-clicking on an OFF bit turns it on.

Figure 6.31. Switch

(3) Seg7

Left-clicking on this component brings up a dialog box that enables you to set an output value from the keyboard.

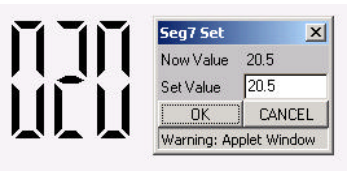


Figure 6.32. Seg7

(4) Volume

By left-clicking on the memory content of the value to be output, you can change the output value.

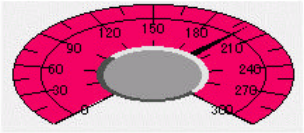


Figure 6.33. Volume

(5) Status

Left-clicking on [Run] for a given Device ID brings up a [Start/Stop] dialog box. Left-clicking on [Device Type] for a given Device ID brings up a basic setup dialog box.

DevID	Device Type	Set	Run	Err
0	DIO-8/8	○	○	0
1	DI-16	○	○	0
2	DO-16	○	○	0
3	ADI12-8	○	○	0
4	DAI12-4	○	○	0
5	CNT24-2	○	○	0

Figure 6.34. Basic Setup Dialog Box

A basic setup dialog box is displayed only for the following modules: ADI12-8(FIT), AI12-4(FIT), and CNT24-2(FIT).

1. ADI12-8(FIT)
   An input signal range must be set.
   The following module ranges can be used: -10 to +10V, -5 to +5V, 0 to +10V, and 0 to +5V.
   Please refer to the Module Manual for further details.

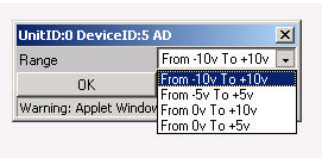


Figure 6.35. ADI12-8(FIT)

2. DAI12-4(FIT)
   An input signal range must be set.
   The following module ranges can be used: -10 to +10V, -5 to +5V, 0 to +10V, 0 to +5V, and 0 to 20mA.
   Please refer to the Module Manual for further details.

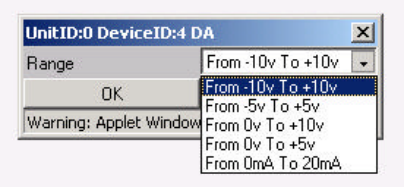


Figure 6.36. DAI12-4(FIT)

3. CNT24-2(FIT)
   This brings up the type of dialog shown on the right.
   CH0 and CH1 are used to set the desired channel for counting input signals.
   The generic output provides output-related settings.
   Please refer to the Module Manual for further details.

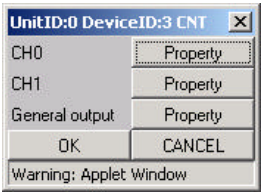


Figure 6.37. CNT24-2(FIT)

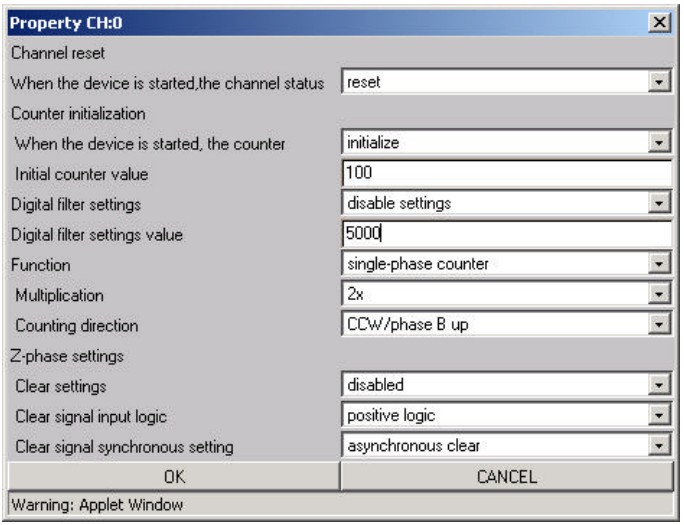


Figure 6.38. Property CH0

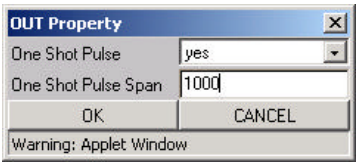


Figure 6.39. OUT Property

7. Creation and a Display of a Processing Task

You can use a browser to access the Monitoring & Control Server from a host computer to view and edit executable tasks.

Operation Procedure

Clicking edit/view task displays the following screen.

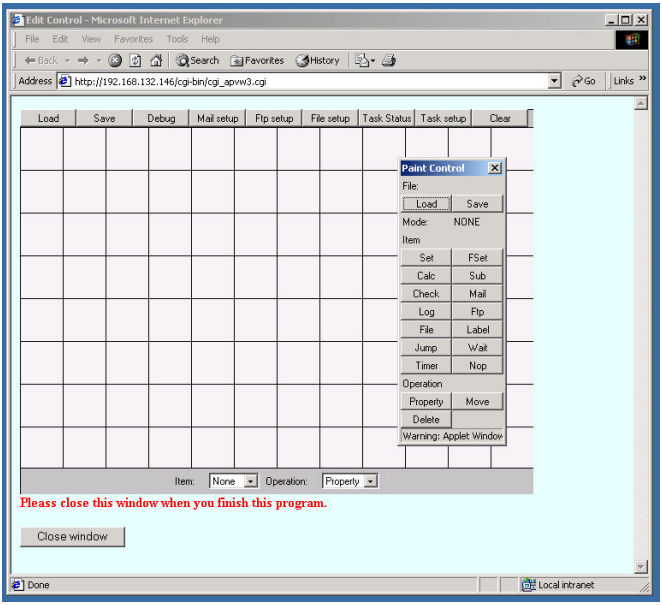


Figure 7.1. Menu

Menu bar functions:

Load:	Loads and displays saved task processing.
Save:	Saves the edited task processing.
Debug:	Displays the debug dialog.
Mail setup:	Specifies the host settings and other setup information for using mail.
Ftp setup:	Specifies the host settings and other setup information for using FTP to transfer data.

File setup:	Specifies settings for saving collected data to a file.
Task Setup:	Specifies the operating mode for a running task.
Task Status:	Displays the status of a running task.
Clear:	Clears the displayed task processing screen.
Item:	Selects a component.
Operation:	Selects an operation.

- Load:
  Loads and displays saved task processing.

- Save:
  Saves the edited task processing.

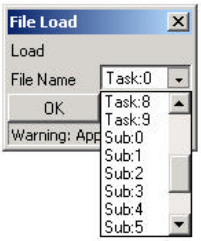


Figure 7.2. File Load

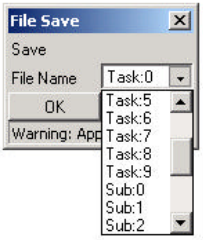
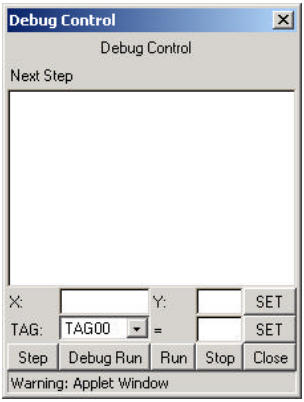


Figure 7.3. File Save

A maximum of 10 tasks can be created and executed simultaneously. A maximum of 10 subroutines can be created and called from the tasks.

- Debug: Displays the debug dialog.

Use [Debug Run] to display the current task status.
As execution is synchronized with the browser, it is slower than the actual processing speed.



- Enter values in the X and Y fields, then click [SET] to change the execution position.
- You can modify the value for a TAG number by selecting the TAG, entering the new value, then clicking [SET].

Figure 7.4. Debug Control

Step:	Execute component instructions one at a time.
Debug Run:	Run step execution continuously.
Run:	Execute task in normal mode.
Stop:	Stop task.
Close:	Close dialog.

- Mail Setup: Specifies the host settings and other setup information for using mail.

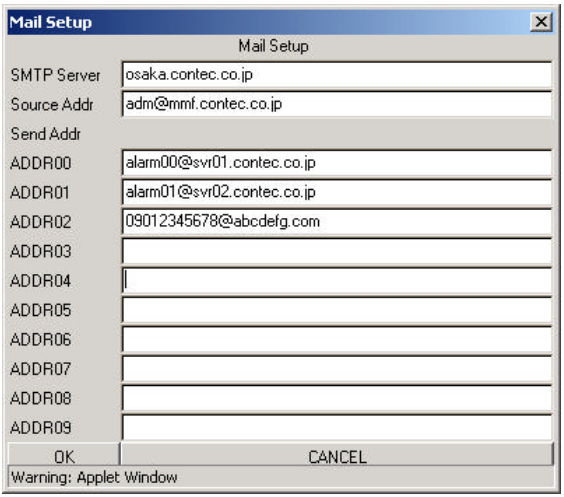


Figure 7.5. Mail Setup

Set these parameters when using e-mail to send alarms or collected data.
A maximum of 10 destination addresses can be set.

- Ftp Setup: Specifies the host settings and other setup information for using FTP to transfer data.

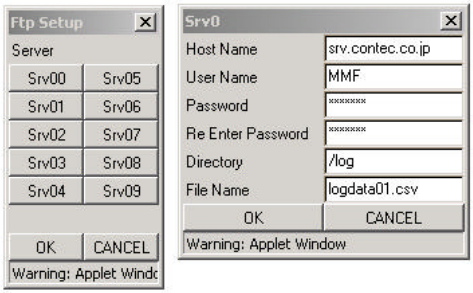
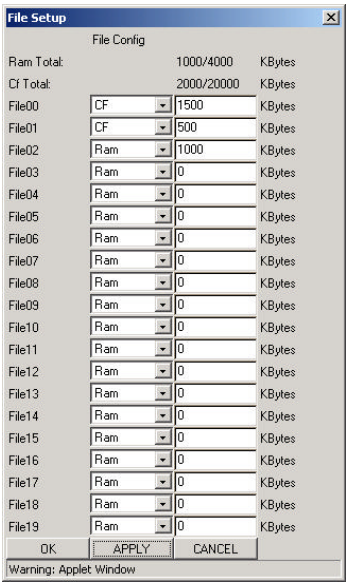


Figure 7.6. Ftp Setup

Set these parameters when using FTP to send collected data.
A maximum of 10 destination hosts can be specified.

- File Setup: Specifies settings for saving collected data to a file.



Files for storing collected data can be created in the RAM area or Cf area.
Files created in the RAM area are lost when the power to the device is turned off.
Files created in the Cf area are not erased when the power is turned off but data may be lost if the power is turned off during a write operation.

Specify the size of the file.
When the saved data exceeds the file size, old data is deleted and new data saved at the end of the file.

Figure 7.7. File Setup

- Task Setup: Specifies the operating mode for a running task.

- Task Run: Set the execution mode for the created tasks.
The available modes are “Parallel” and “Serial”.
When “Serial” is specified, task 1 executes after task 0 completes (when an instruction passes control outside the task screen). Tasks are executed in order starting from the lowest task number. Task 0 executes again after task 9 completes.
When “Parallel” is specified, the instructions from one cell are executed from task 0 then the instructions from one cell are executed from task 1.

Figure 7.8. Task Setup

Tasks are executed in order starting from the lowest task number. After task 9 executes, the instructions in the second cell for task 0 are executed. If operations such as control, data collection, and sending mail are implemented in separate tasks, this prevents the processing time required for mail sending from affecting control operations.

- Device I/O: This specifies whether I/O device access is performed by [Unit] or by [Channel]. Channel access must be specified if a multiple supervisory controllers are accessing a remote device. Otherwise, please specify [Unit] access for normal operation.

- Task Status: Displays the status of a running task.
  Displays the X, Y coordinates currently being executed by each task in the format (9, 9).

  Displays the instruction currently being executed by each task ([check], [set], [sub], [timer], etc.)

  Displays the time interval for each task to execute the instructions at coordinates (0, 0) in msec. (Displays the scan time.)

  Displays the execution status of each task.

  You can click the [Start] and [Stop] buttons to start and stop task execution.

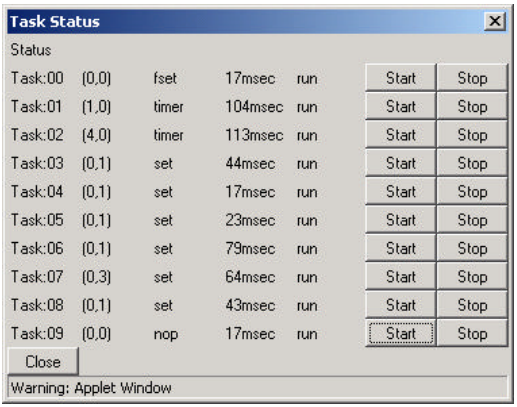

Task Status
Status
Task:00 (0,0) fset 17msec run Start Stop
Task:01 (1,0) timer 104msec run Start Stop
Task:02 (4,0) timer 113msec run Start Stop
Task:03 (0,1) set 44msec run Start Stop
Task:04 (0,1) set 17msec run Start Stop
Task:05 (0,1) set 23msec run Start Stop
Task:06 (0,1) set 79msec run Start Stop
Task:07 (0,3) set 64msec run Start Stop
Task:08 (0,1) set 43msec run Start Stop
Task:09 (0,0) nop 17msec run Start Stop
Close
Warning: Applet Window

Figure 7.9. Task Status

- Clear: Clears the displayed task processing screen.

Figure 7.10. Clear

- Item: Selects a component.

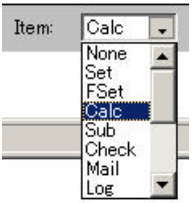


Figure 7.11. Item

- Operation: Selects an operation.

Figure 7.12. Operation

Basic Operations

(1) Parts are arranged.
In [Item], select the desired component, and click on it on the screen in order to lay it out.

Example: Inserting a Set instruction

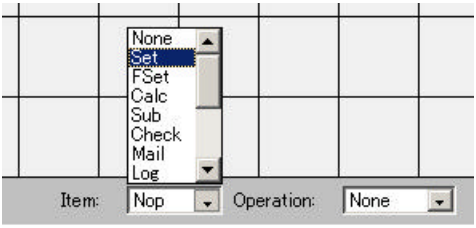


Figure 7.13. Item

↓

Figure 7.14. Item Set

Single-clicking on the screen displays the meter.

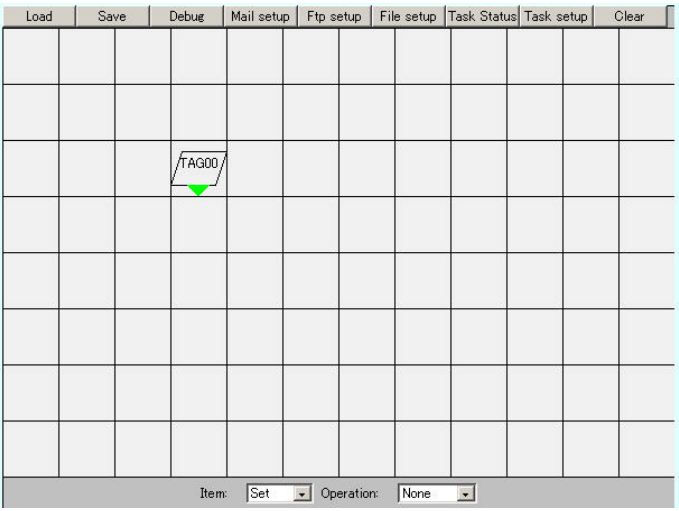


Figure 7.15. Set

(2) In [Operation], select [Properties], and click on the component to open the [Properties] box.

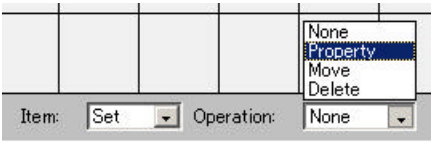


Figure 7.16. Operation

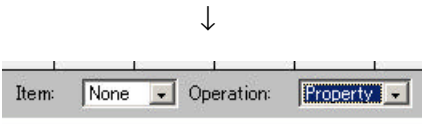


Figure 7.17. Operation Property

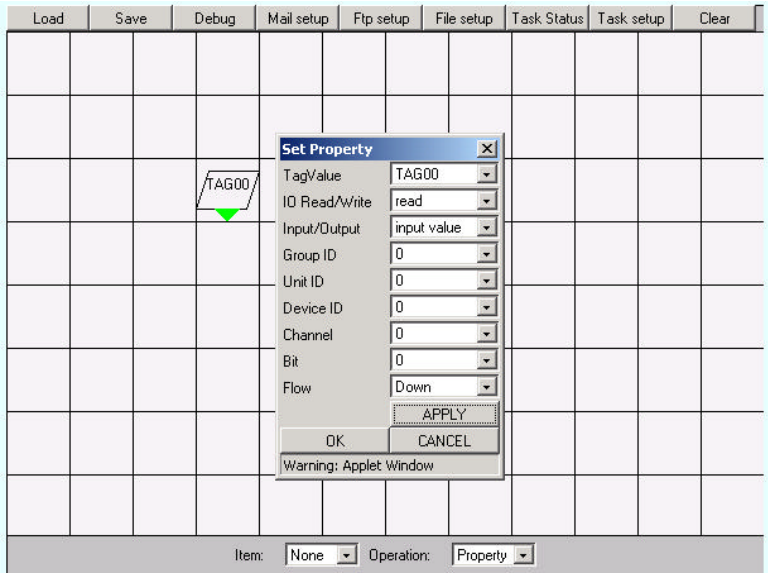


Figure 7.18. Property

Components have parameters that control their function and “flow” that controls which component is to be executed next.
In this example, device data is read into TAG00 then control is passed to the next component in the downwards direction (Down).

(3) You can also move a component by selecting [Move] in [Operation].

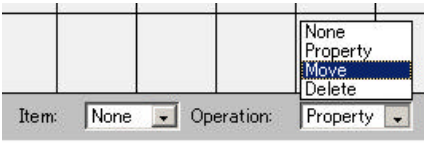


Figure 7.19. Operation

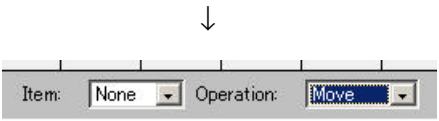


Figure 7.20. Operation Move

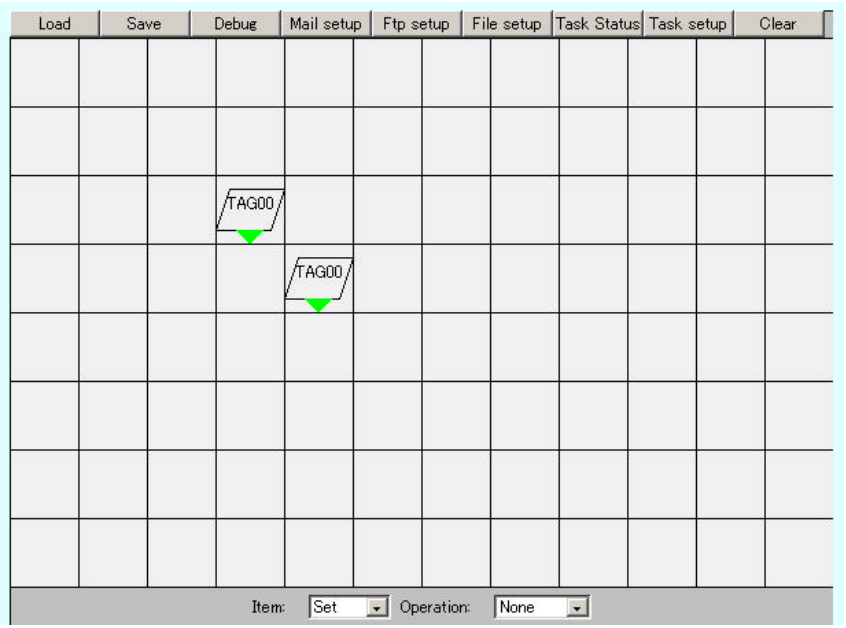


Figure 7.21. Move

By left-clicking the mouse on the component and dragging the mouse, you can move the components. Releasing the mouse fixes the component at the current mouse position.

(4) You can delete a component by selecting [Delete] in [Operation].

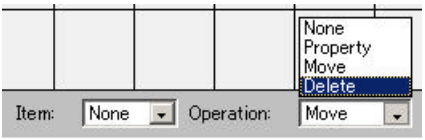


Figure 7.22. Operation

Figure 7.23. Operation Delete

Left-clicking on the component deletes it.

(5) Use the procedures described above to lay out the components and define the task.

You can use the [Save] menu command to save the edited task processing. This opens a dialog for you to specify the task number in which to save the task.
You can use the [Load] menu command to load a previously saved task. This opens a dialog for you to select the task number.

To start executing the new task processing, use the [Task Status] menu command to [Stop] and then [Start] the task.

The Kind and Outline of Parts Which Can Be Used

Components that can be selected from [Item] on the Menu bar are described below.
Each component represents a processing function.
When processing completes, execution proceeds to the next cell.
The next cell is determined by the “Flow” setting for the component.

(1) Set: Input or output the device value to or from the specified TAG number variable.

External view of the component

Properties dialog box

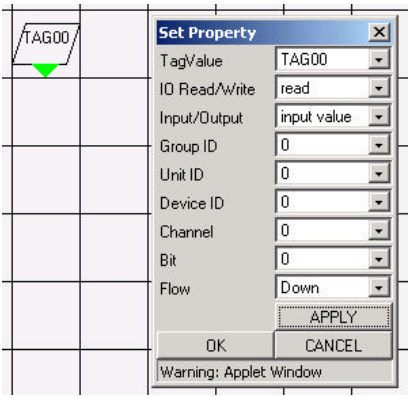


Figure 7.24. Set

If [IO Read/Write] is set to [read], the component sets the device value in the TAG number variable. If [write] is selected, the value of the TAG number variable is output to the device.
The device is specified by the Group ID, Unit ID, Device ID, and Channel.
A [Group ID] value of 9 indicates one of the local devices stacked with this device.
The [Bit] parameter can be set to 0 to 7 or to [all]. If [Bit] is set to between 0 and 7, the specified bit only is input or output.
Bit: 0 is the LSB (the result of ANDing the variable with 0x01).

Select [all] to input or output the entire channel value.

(2) FSet: Set a fixed value to a specified TAG number variable.

External view of the component

Properties dialog box

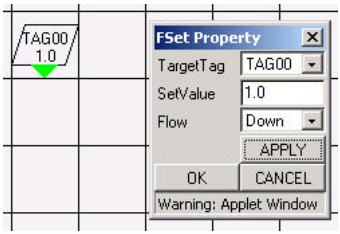


Figure 7.25. FSet

- SetValue: Enter the value to set.

(3) Calc: calculation

External view of the component

Properties dialog box

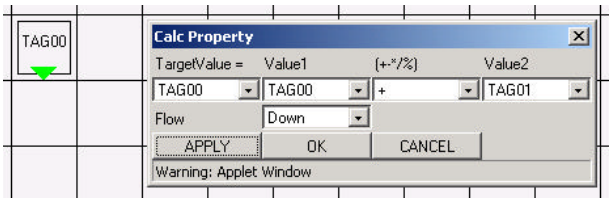


Figure 7.26. Calc

Performs a calculation on the TAG number variable selected in [Value1] and the TAG number variable selected in [Value2], and sets the result in the TAG number variable selected in [TargetValue]

Available calculations are addition, subtraction, multiplication, division, remainder, AND, and OR.

(4) Sub: Call a subroutine

External view of the component

Properties dialog box

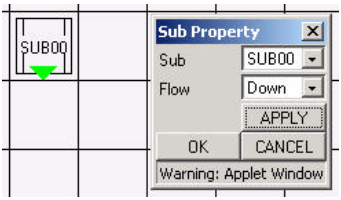


Figure 7.27. Sub

Calls the selected subroutine. Executes the next cell after subroutine execution completes.

Subroutines may be called from within subroutines up to a maximum nesting of 10 levels.

If an attempt is made to call a subroutine beyond that nesting level, the subroutine is not executed and returns immediately.

(5) Check: Conditional branch

External view of the component

Properties dialog box

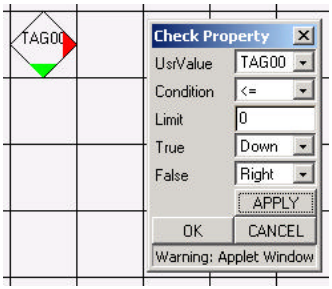


Figure 7.28. Check

Processing branches based on the result of comparing the value set in [Limit] with the selected TAG number variable.
The available [Condition] settings are <=, >, =, <=, and <.

Execution branches depending on the specified condition.

When the condition is satisfied:	True
When the condition is not satisfied:	False

(6) Mail: Send an alarm by e-mail.

External view of the component

Properties dialog box

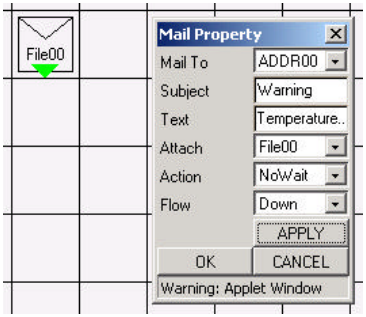


Figure 7.29. Mail

- Mail To: Select the destination address for the e-mail.
- Subject: Select the subject for the e-mail.
- Text: Select the text for the e-mail.
- Attach: Select the log file to attach to the e-mail. If [NONE] is selected, no file is attached.
- Action: If [Wait] is specified, execution does not proceed to the next step until sending the mail to the SMTP server completes. If [NoWait] is specified, the send request is handled by a separate task and execution proceeds to the next cell.

(7) Log: Save collected data to a file.

External view of the component

Properties dialog box

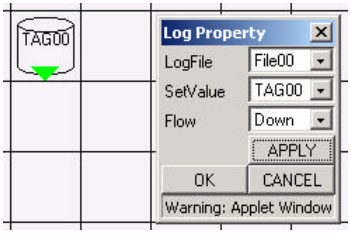


Figure 7.30. Log

- LogFile: Select the file in which to write the data.
- SetValue: Select the data to write.
  The available range is TAG00 to TAG99. The data is saved in comma-separated value (CSV) format.
  Date, time, and carriage return can be select as data to write to the file.

(8) Ftp: Send collected data via FTP.

External view of the component

Properties dialog box

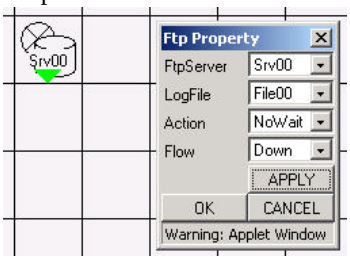


Figure 7.31. Ftp

- FtpServer: Select the destination host.
- LogFile: Select the file to send.
- Action: If [Wait] is specified, execution does not proceed to the next step until sending the mail to the SMTP server completes. If [NoWait] is specified, the send request is handled by a separate task and execution proceeds to the next cell.

(9) File: Perform an operation on a log file.

External view of the component

Properties dialog box

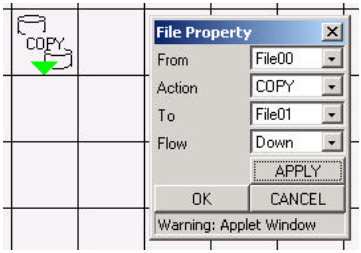


Figure 7.32. File

- From: Select the file on which to perform the operation.
- Action: Select the file operation. The available operations are [COPY], [MOVE], [APPEND], and [DEL].
- To: Select the target file
  The [To] file is ignored if the selected [Action] is [DEL].

(10) Label: Create a label.

External view of the component

Properties dialog box

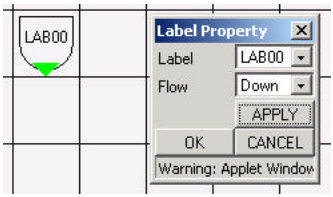


Figure 7.33. Label

- Label: Select the label name. The label is used to indicate the destination for a subsequent Jump instruction.

(11) Jump: Jump instruction

External view of the component

Properties dialog box

Figure 7.34. Jump

- Jump: Select the label name.

(12) Wait: Delay processing for a specified time.

External view of the component

Properties dialog box

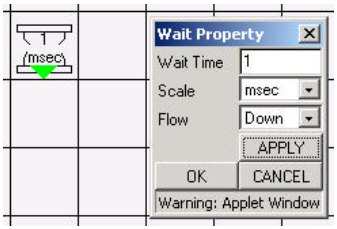


Figure 7.35. Wait

- Wait Time: Enter the waiting time.
- Scale: Select the units. Available settings are [msec], [sec], [min], and [hour].

(13) Timer: Execute at specified time.

External view of the component

Properties dialog box

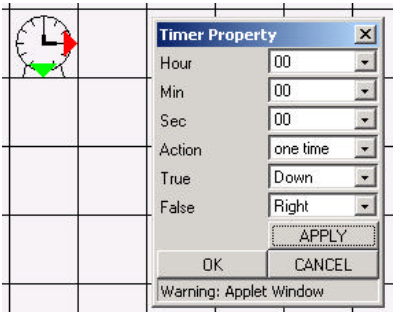
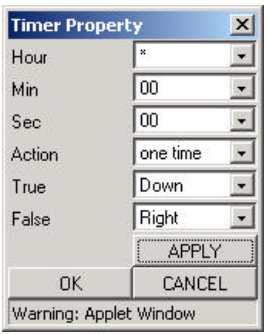


Figure 7.36. Timer

- Hour: Specify the hour. Specify a value between 00 and 23. Selecting [*] specifies that the action is performed every hour.
- Min: Specify the minute. Specify a value between 00 and 59. Selecting [*] specifies that the action is performed every minute.
- Sec: Specify the second. Specify a value between 00 and 59. Selecting [*] specifies that the action is performed every second.
- Action: Select the action to perform at the specified time.



[every times]: Branch to [True] whenever the condition is true.

[one time]: Execute once then do not branch to [True] again until the condition becomes [False].

Figure 7.37. Example of a Timer setting

The settings shown on the right are used to execute once only at every hour on the hour.

(14) Nop: With no processing

External view of the component

Properties dialog box

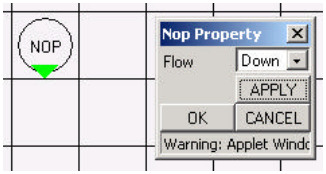


Figure 7.38. Nop

- Does not perform any operation. Used to link from one component to another.

Creation screen image

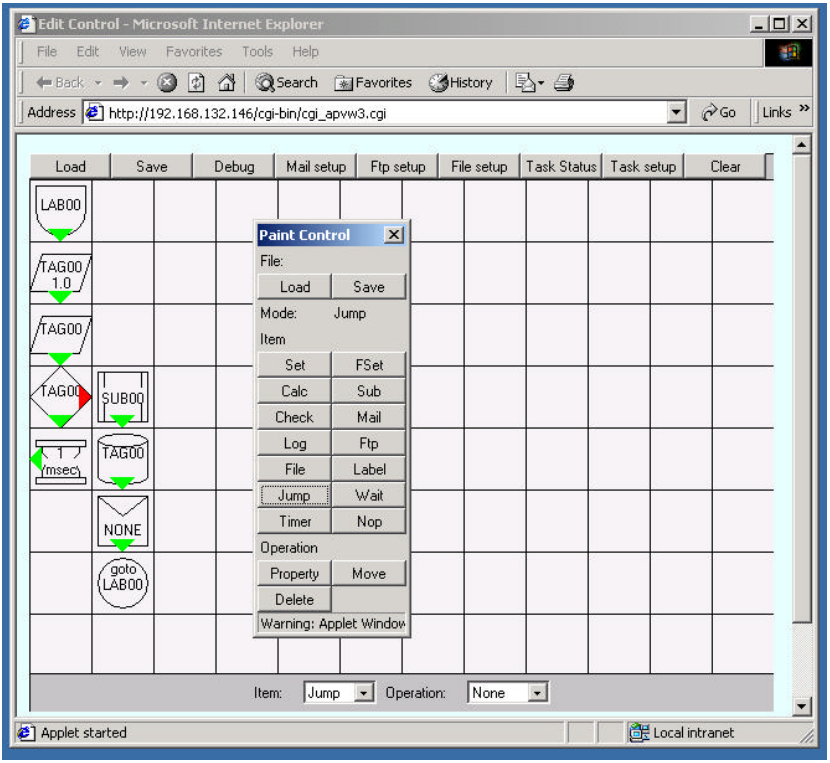


Figure 7.39. Creation screen

Sample

Sample 1
Output data to a different channel when the value is non-zero.

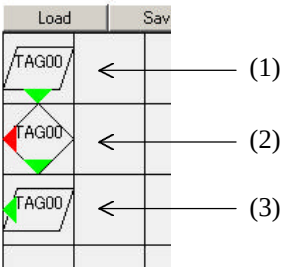


Figure 7.40. Sample 1

(1) Read the collected data into TAG number 00

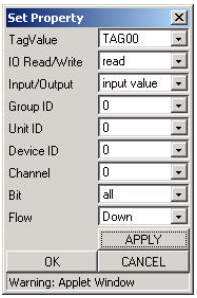


Figure 7.41. Set Property

(3) Output the data from TAG number 00 to channel 0 of device 1.

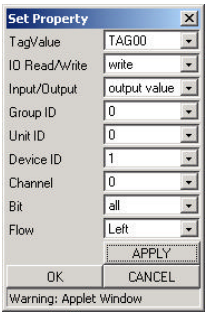


Figure 7.43. Set Property

(2) If the value of TAG number 00 is greater than zero, perform the step below. Otherwise perform the step on the left. If control moves to a location outside the frame, processing jumps back to the initial instructions at (0, 0).

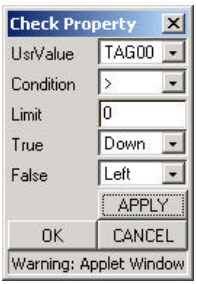


Figure 7.42. Check Property

Sample 2

When a value is non-zero, increment by one then output data to a different channel.

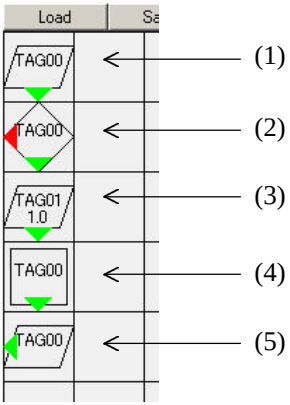


Figure 7.44. Sample 2

(1) Read the collected data into TAG number 00

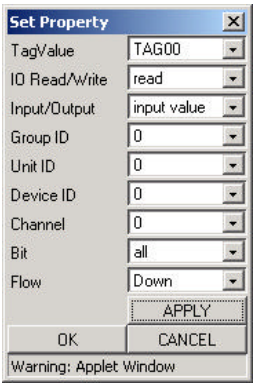


Figure 7.45. Set Property

(2) If the value of TAG number 00 is greater than zero, perform the step below. Otherwise perform the step on the left. If control moves to a location outside the frame, processing jumps back to the initial instructions at (0, 0).

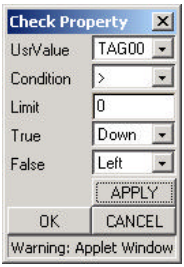


Figure 7.46. Check Property

(3) Set the value of TAG number 01 to 1.

Figure 7.47. FSet Property

(4) Add the value of TAG number 00 to TAG number 01 and set the result in TAG number 00.

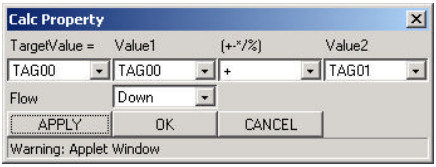


Figure 7.48. Calc Property

(5) Output the data from TAG number 00 to channel 0 of device 1.

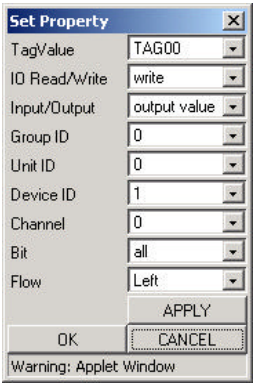


Figure 7.49. Set Property

Sample 3

Write collected data to a file once every hour.

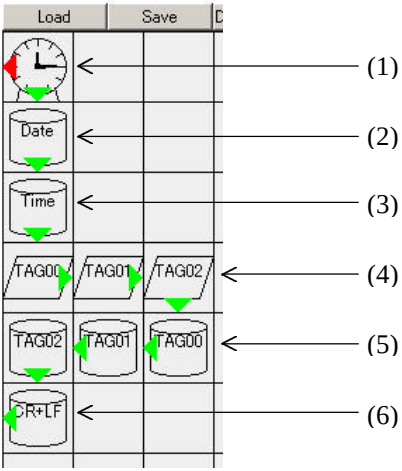


Figure 7.50. Sample 3

(1) Processing branches to [True] at 0 minutes past each hour. As [Action] is set to [one-time], the action is executed once only every hour.

Figure 7.51. Timer Property

(2) Write the current date to LogFile "File00".

Figure 7.52. Log Property

(3) Write the value of TAG00 to LogFile “File00”.

Figure 7.53. Log Property

(4) Read the collected data into TAG02.

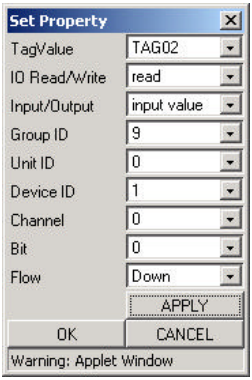


Figure 7.54. Log Property

(5) Write the value of TAG00 to LogFile “File00”.

Figure 7.55. Log Property

(6) Write “carriage return + line feed” to LogFile “File00”.

Figure 7.56. Log Property

Sample 4

The example of use of a sub routine

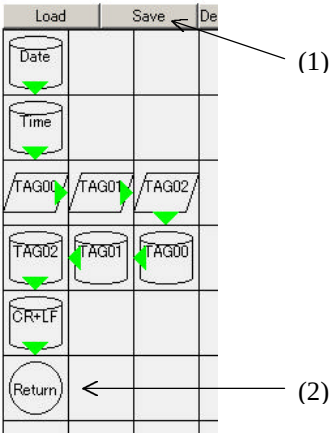


Figure 7.57. Sample 4-1

(1) Save as a subroutine.

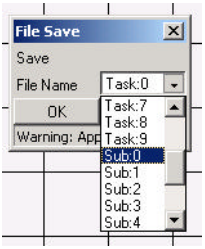


Figure 7.58. File Save

(2) Add a Jump component to return from the subroutine.
Select [Return] as the jump destination.

Figure 7.59. Jump Property

(3) Call the subroutine from the main task.

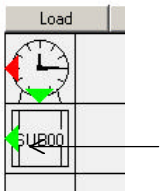


Figure 7.60. Sample 4-2

(4) Call the subroutine.

Figure 7.61. Sub Property

Sample 5

Send collected data to a server using mail and FTP.

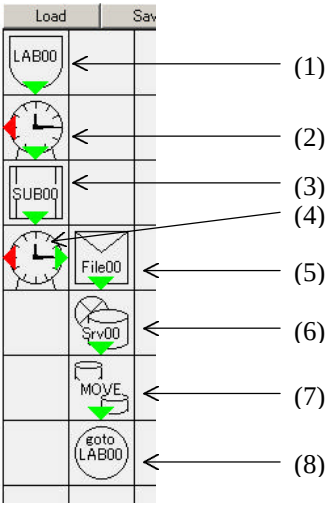


Figure 7.62. Sample 5

(1) Select a label name.

Figure 7.63. Label Property

(2) Processing branches to [True] at 0 minutes past each hour. As [Action] is set to [one-time], the action is executed once only every hour.

Figure 7.64. Timer Property

(3) Call the subroutine.

Figure 7.65. Sub Property

(4) Processing branches to [True] at 0 minutes past each hour. As [Action] is set to [one-time], the action is executed once only a day.

Figure 7.66. Timer Property

(5) Send an e-mail.

- Select the destination address in the [Mail To] field.
  Select one of ADDR00 to ADDR09. These are defined in the Mail Setup.
- If sending an attached file, select the file in the [Attach] field.
- In the [Action] field, specify whether to wait for sending to complete or to return immediately. If [No Wait] (return immediately) is specified, ensure that no other processing updates the file while it is waiting to be sent.

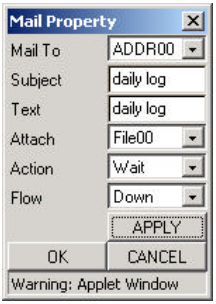


Figure 7.67. Mail Property

(6) Send the collected data via FTP.

- Select the [FtpServer] to which to send the file.
- Select the file to send in the [LogFile] field.
- In the [Action] field, specify whether to wait for sending to complete or to return immediately. If [No Wait] (return immediately) is specified, ensure that no other processing updates the file while it is waiting to be sent.

Figure 7.68. Ftp Property

(7) Perform an operation on the LogFile.
For example, [MOVE] the already sent file “File00” to “File01”.
[MOVE] deletes the old file after copying to the new file.

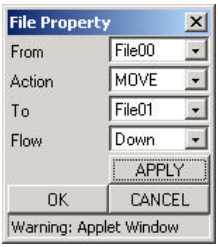


Figure 7.69. File Property

(8) Use [Jump] to pass control to the specified label.
In this example, processing is restarted from X, Y position (0, 0).

Figure 7.70. Jump Property

8. Troubleshooting

Use the following procedures if you encounter problems using the unit.

(1) Check the front panel LEDs.
The RUN and STATUS LEDs are located on the front panel.

- Check that the RUN LED is blinking.
- Check that the STATUS LED is off.
  Check that the correct power supply is being provided to the unit. Refer to “Supplying the Power to the Controller Module” in “Chapter 4 Hardware Setup”.

(2) Check the network port LED.
Check the UTP connector LED on the front panel.
The LINK ACT LED illuminates when the network cable is correctly connected to the hub. If not illuminated, refer to “Chapter 3 Functions of the Various Components” and check the connection.
The LINK ACT LED blinks when communication via the network port is in progress.

(3) Use the PING command on a host computer to check if the unit responds.
Ping the IP address assigned to this unit.
If the unit is operating, it should respond.

Example: When the device IP address is 10.1.1.1, the following should be displayed:

```
ping 10.1.1.1<Enter>:
Reply from 10.1.1.1: bytes=32 time<10ms TTL=255
Reply from 10.1.1.1: bytes=32 time<10ms TTL=255
Reply from 10.1.1.1: bytes=32 time<10ms TTL=255
```

If you do not know the unit’s IP address, you can restore the factory default setting by holding down the “SHUT DOWN” switch on the front panel when turning on the power.

Note!

This also resets the other settings.

(4) If the unit does not accept the user name and password when connecting from a browser on a host computer, remember that the user name and password are case sensitive. Check that the Caps Lock is off then enter again.

If you have forgotten your user name and password, you can restore the factory default setting by holding down the “SHUT DOWN” switch on the front panel when turning on the power.

Note!

This also resets the other settings.

(5) If the monitoring or task editing screen does not appear
The monitoring and task editing screens use Java applets. Check that your browser is setup to allow Java applets to execute.

(6) If the dial-up function does not work properly

- Does not dial up
  Connect using a browser and check the “Operating status display”.
  Check whether the “PPP client” is running.
  If not running, click [Start] to start the client.

- Dials but is unable to connect.
  Connect using a browser and check the “Modem configuration”.
  Check the “Call command from modem” and telephone number settings.
  Connect using a browser and check the “Dial-up configuration”.
  Check the “User name” and “Password” settings.

(7) Unit does not start.

The backup battery may be flat. Contact CONTEC for replacement and repair.

9. Appendix

F&eIT Protocol Specifications

The proliferation of Internet connections has created numerous Ethernet-based LAN installations, which have enabled a large number of devices to access networks, with the result that increasing numbers of FA and SOHO devices using this infrastructure have been deployed. These devices, however, are mostly used as stand-alone units, which do not fully exploit the greatest advantage of networks: interconnectivity.

In view of the situation, CONTEC, drawing upon its network technology and I/O device expertise and their integration, is pleased to propose a communications server concept that organically links a wide range of devices, from WAN-based machines to remote I/O devices. In the following set of specifications, we define a common protocol that can be used in such a communications server.

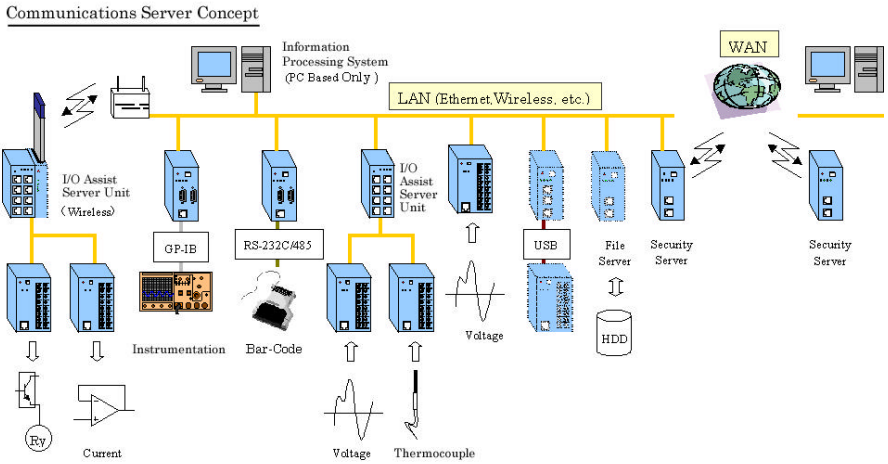


Figure 9.1. Communications Server Concept-Overall Diagram

The following defines the common protocol layers that will be provided in all products based upon the communications server concept. Such products, complying with the communications server specifications, will be able to access device information using the same protocol.

The role of the F&eIT Protocol

The F&eIT Protocol defines the following protocol layers.

Table 9.1. Table of Protocol Levels

Application layer	ACX, DLL, etc
Device-dependent control layer	
FactoryIT protocol layer	FactoryIT protocol specifications
Transport layer	UDP, ICMP
Network layer	IP, ARP
Data link layer	Ethernet (IEEE802.3), etc
Physical layer	

Basic Specifications

Concepts

The F&eIT Protocol assigns all device resources (including information) to virtual space so that any access to a device will be performed by specifying a virtual address. The virtual space is divided into information common to devices, device-specific information, I/O space, and memory space. The specific location in the virtual space where information is stored and the method by which information is stored is completely transparent to where or how information is stored in actual physical resources.

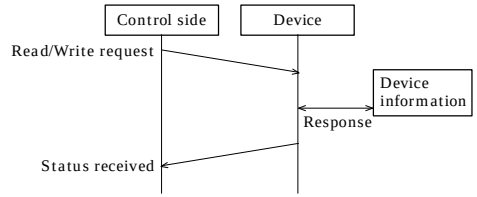
Table 9.2. Virtual Space Outline

00000000h to 000FFFFFh	Information common to devices (1M byte)
00100000h to 001FFFFFh	Device-specific information (1M byte)
00200000h to 002FFFFFh	Definition of device-specific information (1M byte)
00300000h to 003FFFFFh	I/O space (1M byte)
00400000h to 004FFFFFh	Memory space (1M byte)
FFE00000h to FFFFFFFFh	Firmware update area (2M byte)

Data Communications Protocol

The F&eIT Protocol has two access procedures on the connectionless UPD/IP: response-type access and trap-type access.

(Response-type)



(Trap-type)

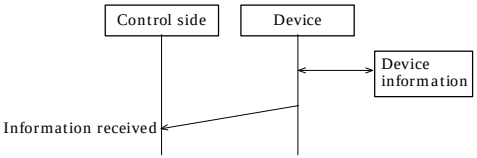


Figure 9.2. Communications Protocol

Frame format

Using the UDP/IP port address 5007h, the F&eIT Protocol is installed in the data section.
The frame structure takes the format described below. Due to the header byte order conventions, the Ethernet, IP, and UDP are treated as Big Endians; all other entities are treated as Little Endians, for which controls exerted by an x86 CPU hold priority.

Table 9.3. Frame Structure

	Header name	Size (byte)	Remarks
Ethernet section	Destination Address	6	Remote MAC address
	Source Address	6	Local MAC address
	Type Field	2	Ethernet II
IP section	IP Ver4 Header	20	Fragment disabled
UDP section	UDP Header	8	Port Address 5007h Check Sum disabled
Communication server section	Identifier	2	"SV"
	Version	1	Version of the header structure
	Command	1	Command and the ACK flag
	Sequence number	2	Frame Id
	Response ID	2	Identifies the sender.
	Virtual address	4	Specifies a virtual address space.
	Access size	2	1436 bytes maximum
	Status	2	Result of command execution
	Access ID	8	Identifies the Read/Write privilege
	Remote MAC address	6	Specifies a remote MAC address when using IP multicasting
	Reserved	6	Reserved for future use
	Data section	1436	Data area

[Description of communications server headers]

(1) Identifier ---
Identifies the frame as a F&eIT Protocol frame.

(2) Version ---
Indicates the frame version.

(3) Command ---
The virtual address access command.

(4) Sequence no. ---
A counter that prevents the occurrence of duplicate frames, wherein the sequence number is incremented each time a packet is transmitted.

(5) Response ID ---
When a response-type command is transmitted, the contents of the response ID are copied to the response ID for the response frame.

(6) Virtual address ---
Specifies the virtual address being accessed, e.g., device information can be read by specifying the address 0000h.

(7) Access size ---
Specifies the size of the data to be accessed, from 1 to a maximum of 1436 bytes.

(8) Status ---
Stores status information after the command is executed.

(9) Access ID ---
This is an ID for virtual address access control.

(10) Remote MAC address ---
When data is read/written using IP Multicast, the MAC address of the remote device is set in this header. When data is to be sent to all devices on the network, the value ALL[F] is set in this header.

(For Unicast: "ALL [0]")

Commands in detail

The following command is set in the command section (Offset = 4 in the F&eIT Protocol header section):

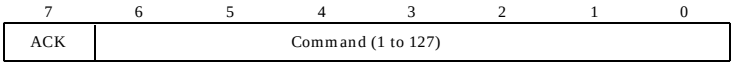


Figure 9.3. Command Structure

Bits 0 to 6 represent the command; the MSB indicates a response frame (ACK).
7Bit = 0: command request
1: command response

Table 9.4. Commands in Detail

Command number	Command description	Type	Remarks
1	Reads from a virtual address	Response	Reads device information by specifying a virtual address.
2	Writes to a virtual address	Response	Updates device information by specifying a virtual address.
3	Transmits messages	Response	Exchanges messages between devices.
4	Trap	Trap	Transmits trap information from a device, based on
5	Reset	Response	Resets a device after returning a response
7 to 127	Reserved	Undefined	Undefined

Command-issuing procedure

- **Read a virtual address (command = 1)**

  A virtual address and its size are specified, and the frame is transmitted to the target device.
  The result is received as a response frame with data.
  (Example: reading a vendor name)

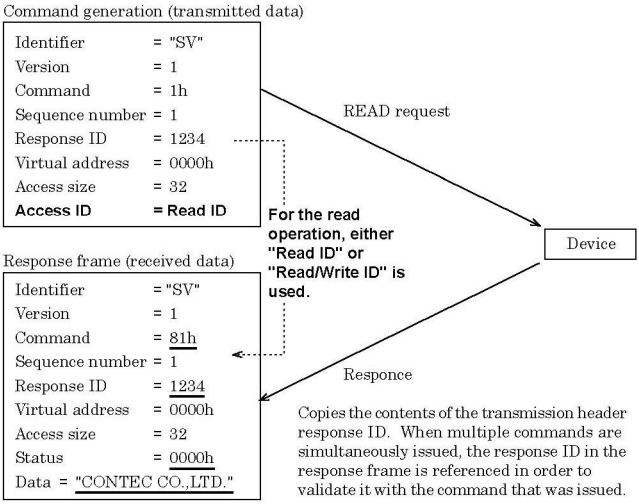

Command generation (transmitted data)
Identifier = "SV"
Version = 1
Command = 1h
Sequence number = 1
Response ID = 1234
Virtual address = 0000h
Access size = 32
Access ID = Read ID
READ request
For the read operation, either "Read ID" or "Read/Write ID" is used.
Device
Response frame (received data)
Identifier = "SV"
Version = 1
Command = 81h
Sequence number = 1
Response ID = 1234
Virtual address = 0000h
Access size = 32
Status = 0000h
Data = "CONTEC CO.,LTD."
Responce
Copies the contents of the transmission header response ID. When multiple commands are simultaneously issued, the response ID in the response frame is referenced in order to validate it with the command that was issued.

Figure 9.4. Read Procedures

- **Writing to a virtual address (command=2)**

  A virtual address and its size are specified, and the frame is transmitted to the target device. The result is received as a response frame status.
  (Example: setting an IP address)

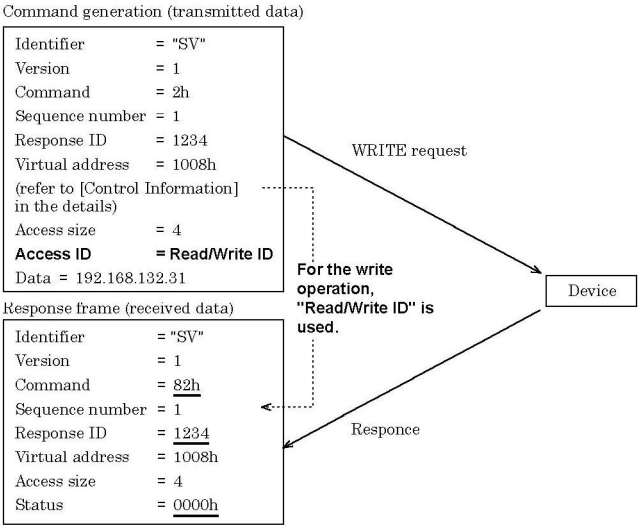


Figure 9.5. Write Procedures

- **Message transmission (command=3)**

  Writes the message to be transmitted into the data section.
  The result is received as a response frame status. The maximum data size that can be transmitted per command is 1452 bytes.
  (Example: data transmission)

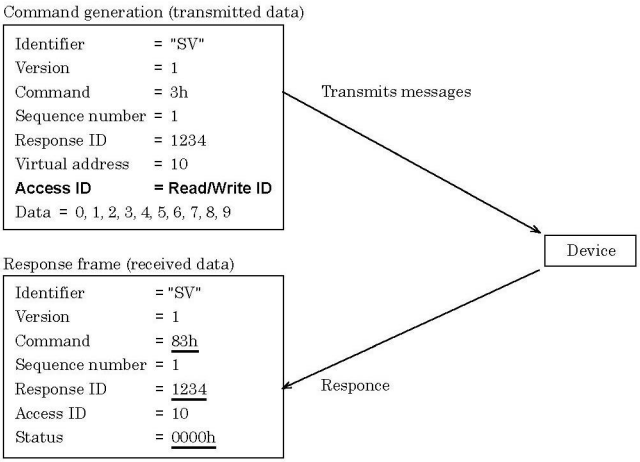


Figure 9.6. Message Transmission

- Trap transmission (command = 4)

This command is used by devices to send a signal to the controller when a trap event occurs (an interval timer event or a pre-set event). If a response is required, the MSB in the command is set to 0.

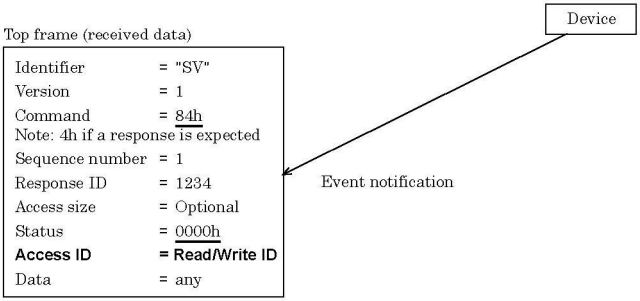


Figure 9.7. Trap Transmission

- Reset(command=5)

This command resets a given device. Before resetting itself, the device will return a response frame.

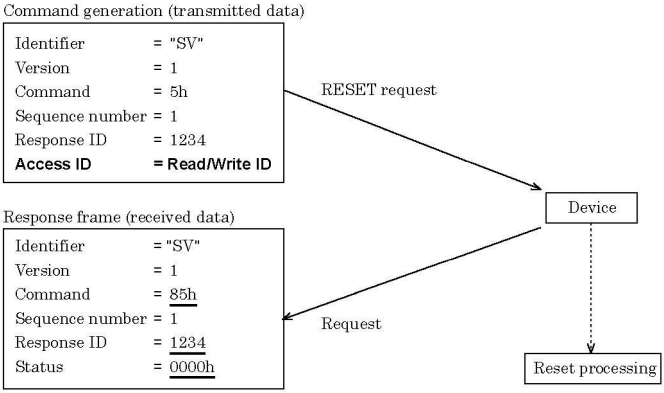


Figure 9.8. Reset Transmission

Response status

Following is a table of status information that is returned by response-type commands:

Table 9.5. Status Table

Code	Description	Remarks
0000h	Normal termination	
0001h	Access violation	An attempt was made to write to a Read-only area.
0002h	Area error	Access was made to an area not defined on the device.
0003h	Access size error	An access request greater than 1436 bytes was made.
0004h	Parameter error	Invalid parameter contents, such as receipt of a non-supported command.
0005h	Length error	Invalid transmission length, such as an inconsistent data size with the number of data items calculated from the UDP/IP.
0006h	Insufficient resources	Too many tasks are waiting for ACK data, causing a resource shortfall. The resources can be released by a timeout.

Control Information

The F&eIT Protocol assigns all resources that are disclosed outside the devices to 32-bit virtual space. Following is a table of correspondence between virtual addresses and device information. The bytes are ordered in Little Endians.

Information common to devices

The following types of information are provided in all F&eIT Protocol-compliant devices:

Table 9.6. Information Common to Devices <Example>

Address	Size		Description	Remarks	
0000h to 0FFFh	32	R	Vendor name	"CONTEC CO.,LTD."	
	32	R	Model	"SVR-MMF(FIT)"	
	2	R	Equipment version	1.0	
	2	R	Firmware version	1.0	
	6	R	MAC address	00804C******	
	2	R	Installation function	0bit : space 1bit : Memory space 2bit : Trap function 3bit : Message send 4bit : Reset function 5bit and higher : reserved	
	4	R	IP address		
	2	R	Product type		
	4	R	Reserved		
	2	R	FactoryIT protocol version		
			Reserved		
1000h to 1FFFh	8	W	Read privilege ID	(Initial value : 00h)	
	8	W	Read/Write privilege ID	(Initial value : 00h)	
	4	R/W	IP address	(Example)192.168.132.31	
	4	R/W	Subnet mask	(Example)255.255.255.0	
	4	R/W	Default gateway	(Example)192.168.132.1	
	4	R/W	Trap-to IP address	(Example)192.168.132.21	
	4	R/W	Number of effective multicast devices	0 to 4 (Initial value = 0)	
	4	R/W	Multicast IP 1	Indicates the group address for multicast communications.	
	4	R/W	Multicast IP 2		
	4	R/W	Multicast IP 3		
	4	R/W	Multicast IP 4		
	2	R/W	UDP port	5007h (Initial value)	
	2		Reserved		
	32	R/W	Device name	User-defined	*1
	32	R/W	Device physical position	User-defined	*1
	32	R/W	Contact point	User-defined	*1
	4	R/W	SNMP trap-to address		*1
	32	R/W	Community name		*1
	4	R/W	Access right	0 : Read Only 1 : Read/Write	*1
			Reserved		
2000h and above	4	R	Elapsed time	Seconds	
	4	R	Total number of transmitted frames	Counter	
	4	R	Total number of transmitted bytes	Counter	
	4	R	Total number of received frames	Counter	
	4	R	Total number of received bytes	Counter	
	4	R	Total number of transmitted errors	Counter	
	4	R	Total number of received errors	Counter	

*1 Because the SVR-MMF(FIT) is not equipped with an SNMP agent, this section is not used.

Device-specific information

Table 9.7. Device-Specific Information <Example>

Address	Size		Description	Remarks
100000h and above	1M	R	Device-specific information	Defines device-specific information.
200000h and above	1M	R	Explanation of device-specific information	Defines device-specific information in text. Kanji characters are not allowed; characters that can be viewed on Windows Notepad can be used.

Information common to devices - 2

Table 9.8. Information Common to Devices - 2 <Example>

Address	Size		Description	Remarks
300000h and above	1M Max.	Arbitrary	I/O space	Assigns the I/O resource to be disclosed.
400000h and above	1M Max.	Arbitrary	Memory space	Assigns the memory resource to be disclosed.
Below till FFDFFFFFh			Reserved	
FFE00000h and above	2M Max.	Arbitrary	Firmware	Optional

In the above table, the entries in the "size" column are in bytes.

R: Read-only area

W: Write-only area

R/W: Read/Write area

For details on this product, see the "Virtual Address Map".

List of F&eIT Series of Products

I/O modules

- CPU-CA10(FIT)	I/O Controller Unit
- DIO-8/8(FIT)	Insulator digital I/O module Insulator, input: 8 points, output: 8 pointts.
- DI-16(FIT)	Insulator digital input module Insulator, input: 16 points
- DO-16(FIT)	Insulator digital output module Insulator, output, 16 points
- ADI12-8(FIT)	Insulator analog input module Insulator, analog input, 12 bits, 8ch
- DAI12-4(FIT)	Insulator analog output module Insulator analog output, 12 bits, 4ch
- CNT24-2(FIT)	Insulator counter module Insulator 24-bit, 2ch counter
- COM-2(FIT) COM 2ch	RS-232C 2ch communications module

HUB unit

- SH-8008(FIT) Switching HUB unit Switching port: 8

Server unit

- SVR-IOA(FIT)	I/O Assist Server Unit

Power supply unit

- POW-AD13	AC-DC power supply unit AC input: 100 to 120V DC output: 5V 3A
- POW-AD22	AC-DC power supply unit AC input: 100 to 240V DC output: 5V 2A
- POW-DD10	DC-DC power supply unit DC input: 10 to 30V DC output: 5V 3A

FAN unit

- FAN-FIT	FAN unit For 52.4mm-width unit or module

A-40-640
LYAL031
021025 [020320]

CONTEC Group

JAPAN : Headquarters
CONTEC Co., LTD.
3-9-31, Himesato, Nishiyodogawa-ku, Osaka 555-0025, Japan
Tel : +81 (6) 6477-5219 Fax : +81 (6) 6477-1692
E-mail : intsales@osaka.contec.co.jp

U.S.A. : CONTEC MICROELECTRONICS U.S.A. INC.
744 South Hillview Drive, Milpitas, CA 95035 U.S.A.
Tel : +1 (408) 719-8200 Fax : +1 (408) 719-6750
E-mail : tech_support@contecusa.com

EUROPE : CONTEC MICROELECTRONICS EUROPE B.V.
Binnenweg 4, 2132 CT, Hoofddorp, The Netherlands
Tel : +31 (23) 567-3030 Fax : +31 (23) 567-3035
E-mail : tech_support@conteceu.nl

KOREA : HYOJIN CONTEC Co., LTD.
Ki-im Bldg. #399, Shindolim-Dong, Kuro-ku, Seoul, Korea
Tel : +82 (2) 2636-4277/8 Fax : +82 (2) 2636-4279
E-mail : product@conteck.com

CHINA : INTERNATIONAL CONTEC TECHNOLOGY CO., LTD.
B-8F, Hua Tong Building, No. B19, Che Gong Zhuang West Road,
Hai Dian District, Beijing 100044, China
Tel : +86(10)8801-8228 Fax : +86 (10)8801-8209
E-mail : ict@ict.com.cn

SHANGHAI CONTEC MICROELECTRONICS CORP.
No. 481 Gui Ping Road, Cao He Jing Hi-Tech Park Shanghai, 200233, China
Tel : +86 (21) 6485-1907 Fax : +86 (21) 6485-0330
E-mail : contec@contec.com.cn

SHENYANG CONTEC MICROELECTRONICS Co., LTD.
No. 169, Qingnian Street, Shenhe District, Shenyang 110015, China
Tel : +86 (24) 2392-9771 Fax : +86 (24) 2392-9773

TAIWAN : MACROMATE CORP.
8F, Universal Center, No.179, Ta-Tung Rd., Sec.1 Hsi-Chih, Taipei Hsien, Taiwan, R.O.C
Tel : +886 (2) 2647-9353 Fax : +886 (2) 2647-9373
E-mail : intl@macromate.com.tw